Britain's best-selling magazine for hardcore Amiga enthusiasts

WIN! Two complete £960 multimedia set-ups

AMIGA SHOPPER

YOUR DEFINITIVE AMIGA GUIDE

From the makers of AMIGA FORMAT

WORDWORTH v3 SHOCK

Exclusive! The Amiga's best word processor: is the upgrade a botch?

FULL COLOUR PRINTING

Photorealism at an astonishingly low price: we check out Primera

HOW TO...

- CREATE flying logos – a pro shows you
- ACCELERATE that startup sequence
- IMPROVE your hand scanning
- WRITE your own paint package
- ADD an ARexx port to your programs
- SPEND your money – without risk!

Explore multimedia

- ***Expert advice on how to choose a CD-ROM drive***
- ***Your complete Amiga multimedia disc directory***
- ***Presentation software: we'll tell you which package* is best for you!**



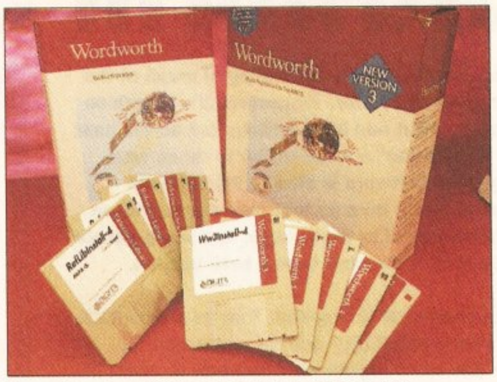
ISSUE 37 ● MAY 1994 ● £2.50

PLUS AMIGA ANSWERS 12 packed pages of solutions ART DEPT 2.5 just *how* much better? US NEWS releases, developments and rumours & PD, comms, letters – *serious Amiga advice!*

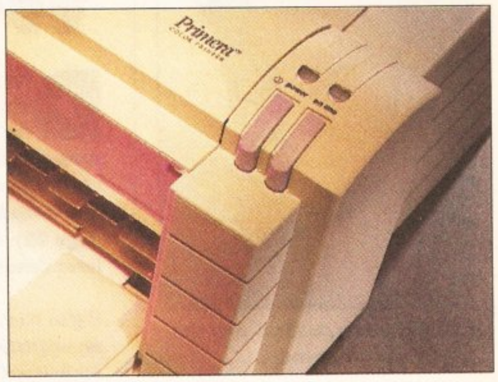
Future PUBLISHING
Your guarantee of value

AMIGA SHOPPER
ISSUE 37 • MAY 1994

IN THIS ISSUE



Does Wordworth 3 really deliver? Page 22.



Top-quality printing with the Primera – page 30.

Multimedia explored



How to choose and fit your own CD-ROM drive; reviews of new multimedia authoring contenders *MediaPoint* and *Helm*; how the Amiga is making a big impact in the real world; listings of every serious CD-ROM available for your Amiga; Commodore's Centres of Excellence; the Future...

COMMENT



Cliff Ramshaw ponders over the month's Amiga events...

The big news this month, of course, is the launch of *Wordworth 3*. You'll find our definitive review of it on page 22. As you can see from the story on the right, there have been some problems with the program. Digita are well aware of them, though, and are committed to fixing them, so hopefully we'll soon have a program on our hands that truly deserves the accolade, "killer application."

This issue sees the introduction of a new writer – R Shamms Mortier, an expert in Amiga graphics and animation – who'll be providing us with news from the States, interviews of key Amiga people and hints and tips on graphics.

Shamms isn't the only new thing in *Amiga Shopper*. We've changed the magazine quite a bit – I hope you find it more informative and fact-packed than ever. Enjoy.

Program to improve your musical ear

Cochlear Consciousness is a suite of programs from Pierceptron designed to train your ear. With it you will learn how to recognise intervals, chords and chord progressions. Further stages deal with the recognition of harmonics, tuning and the development of perfect pitch. Cochlear Consciousness runs on any Amiga with Workbench 1.3 or later, and costs $150 from Pierceptron ☎ 0101 801 521 7215.

Digita react quickly to Wordworth 3 criticisms

Disappointment – that's the feeling of much of the Amiga community after *Wordworth 3*'s launch on 10 March. What had been anticipated as the next Amiga "killer application" – a refutation to those who claim the only good software is Mac or PC software – has turned out to be far from perfect (see our review on page 22). It is hampered by many bugs, and some people have described it as little more than a beta version.

Digita have not been slow to respond. They've announced an upgrade – *Wordworth 3.0a* – due for release on 12 April. It will be free to all registered *Wordworth 3* users. In view of this, we asked Digita managing director Jeremy Rihll if he thought the program had been launched too early. "The original release date was December," he told us. "With the development that's gone into *Wordworth 3*, never is too early. We made the decision that the product had to ship and development had to cease. Some of the problems we've experienced you'd never know about until the product gets to market. I would have preferred it to have been more stable," he added.

He commented that the original *Wordworth 1* was far from bug-free. "You'd be a brave man to use it," he said, yet pointed out that only half the people who'd bought it upgraded to version 1.1, which came three months afterwards. "People who are experiencing the problems are expert users with big machines; or people who are existing *Wordworth* users who know their way around and want to get straight on with it. They say 'as long as you sort it out it's a cool piece of software'."

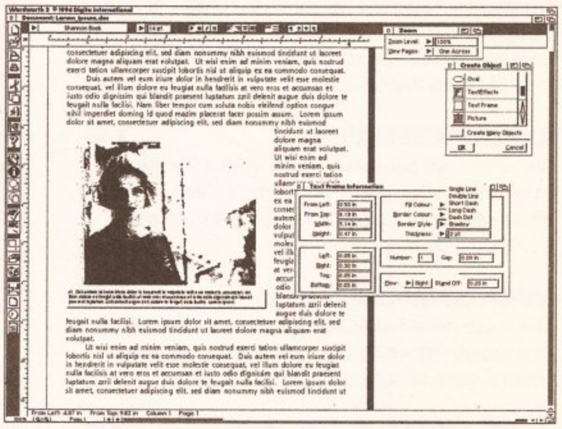
The public's (and journalists') reporting of bugs is, he says, "a bit like fishing by dropping a hand grenade into a pond – the problems then surface and can easily be fixed." Mr Rihll is keen to point out that these problems are already being fixed (see panel).

We asked him if he regretted announcing a launch date in advance, rather than waiting until the program was finished. "With the benefit of hindsight, it would have been better to have had a bit more time. But these things are planned months in advance. In the commercial environment, sometimes you can't afford to hold off launch dates.

"So long as the publisher is prepared to take responsibility, it's acceptable but not desirable. I'm happy that although we'll take the flak for this, we'll get the changes done quickly. It's an on-going process.

"Before, we've always had the product manufactured and ready to go before we've shouted. The problem with doing that is the time lag – there are months between getting a finished product and making any sales.

"The important thing is that people realise the update is a free issue. We're committed to the software – of course we want to get it right. I'd like people to be reasonable.



"I think some of the disappointment comes because of the advance trumpeting." – Jeremy Rihll, Digita.

We look forward to making the product better and better; it will continue to grow."

Version 3.0a of *Wordworth* is due for release on 12 April. If you've bought a copy of 3.0, make sure you register it now to ensure your free upgrade. Look out for a review of it in our July issue, when it goes head-to-head with every word processor available for the Amiga, including the second release of *Final Writer*. Digita ☎ 0395 270273.

The Wordworth bug hunt

Tim Titchmarsh is the man at Digita coordinating the effort to stamp out *Wordworth 3*'s bugs. Below is a list of those known so far (many uncovered by *Amiga Shopper*'s Jeff Walker), and the state of submission Tim and his team have so far beat them into:

- Unable to load help files on A1200 – fixed
- Crash caused by loading some types of ASCII – fixed
- Large amounts of memory needed for graphics – acknowledged as a restriction, but not due for change in the short term.
- Incomplete floppy disk installation – Digita unable to replicate problem
- No PostScript support – will be included in update
- Crash caused by one or two printer drivers – fixed
- Debugging message left in – removed
- Crash caused by certain combination of text effects – Digita still trying to reproduce
- Disappearing text with Format Paragraph – fixed
- Colour settings lost after being customised – fixed
- Hotlinks with bitmaps not working – Digita were unaware of this bug
- Bug with text runarounds next to graphics – same as in *Wordworth 2*, it is being investigated
- Program screen sometimes remaining open after a quit – Digita were unaware of this bug

Tim's team certainly have their work cut out already, but he stresses: "If people have got problems, let us know what they are. We'll do our best to fix them as quickly as we can."

NEWS IN BRIEF ● NEWS IN BRIEF ● NEWS IN BRIEF ● NEWS IN BRIEF ● NEWS IN BRIEF

- Commodore are to badge high-quality Amiga products with their Seal of Approval. "This should, from an end-user point of view, make it easier to identify product tried and tested by Commodore," said Marketing Manager Dawn Levack.
- Multi Media Machine Limited are setting up a service to encode Full Motion Video on to CD-ROM. Call ☎ 0204 363688 for details of their prices.
- Golden Image UK (☎ 081 365 1102) have reduced the price of their popular 256-greyscale hand scanner, the Alfascan Plus, to £135.00. The deal includes *Junior OCR* (optical character recognition software), *Touch Up V3.1* and *Merge It* software packages.

MULTI SYNC MADNESS

Microvitec will be releasing a new multi sync monitor shortly, the Pro-Graphic, at an amazingly low price of £329.99. You may, at first, think this is not so surprising, but wait till you hear the specifications. Although the new monitor is about £20 cheaper than Commodore's own 1942 monitor, it has 0.28 dot pitch which will produce a sharper image than the 1942's dot pitch of 0.38.

As well as producing a sharper image because of the monitor's dot pitch, as it is a multi sync will also produce steady images in all AGA-modes.

The monitor also has exterior stereo speakers and a superior scan rate. ZCL have put in a large order for the monitor so contact them, on ☎ 0543 414817, for more information or to place an order.

SOMETHING TO RAVE ABOUT

Yes, UK users can now use top rendering program, *LightWave*. Ramiga International are distributing it along with *LightRave* for £799. *LightRave* is a dongle that emulates the parts of Newtek's Video Toaster that are necessary to run *LightWave*, the Amiga's premiere 3D graphics program. The Video Toaster has really brought the Amiga's graphical power to the attention of millions of TV viewers across the globe. With the production of the popular sci-fi series *Seaquest DSV* and *Babylon 5*, the Amiga has established itself as a viable replacement for high-end graphics stations, such as those made by Silicon Graphics and Sparc.



At last – the Amiga's very best 3D rendering package is available to video workers in the UK.

LightWave has a number of excellent features, is easy to use and, unlike the Toaster unit itself, can produce images in a wide range of resolutions including PAL. This is great news, as this a brilliant opportunity for *LightWave* to make its mark in Europe.

LightWave really does have some powerful features. For example it is the only Amiga 3D program to support Displacement maps. This feature is similar to bump mapping, a technique that uses changes in colour to act as a map, or template, for a surface's elevations. While bump mapping only effects the rendered image, Displacement mapping actually reshapes the 3D model.

There are a lot more features to the program such as lens flare effects, but if you want to know if the *LightRave/LightWave* product is really worth £800, wait for our in depth review in next month's issue. For those of you already familiar with *LightWave's* amazing features, you might consider selling close-friends and family members into enslavement and then contacting Ramiga on ☎ 0690 770304.

Budget Books

AmaKEY Design have just released three budget-priced new books, each costing just £9.95, for Amiga-owners who are keen to get the most out of their machines. They are: *Buying An Amiga*, *Word Processors* and *Fonts & Clip Art*.

Buying An Amiga provides helpful advice for anyone looking to purchase their first Amiga or a peripheral device. It also contains a glossary of Amiga-related words and phrases, to ensure know which features you really want – so you don't end up buying an A4000/040 to do your letter writing.

Word Processors tells you all you need to know to make an informed choice about which word processor you choose, and how to get it to do what you want it to do.

Fonts & Clip Art explains the differences between the types of fonts and clip art available both commercially and in the Public Domain. It also gives you a few tips on how to get your hands on some of the better examples of clip art.

You can order any of the books from AmaKEY, who are on ☎ 0908 370230.

Mammoth storage from optics

Fourth level Developments have just finished work on a new 1.2Gb storage device. The MO-MIGA 1.2 is Magneto Optical Drive system for any SCSI-equipped Amiga that will retail for about £2700. There are external and internal versions; both accepting double-sided cartridges that can hold up to 600Mb of data on each side. If you run out of space you can simply replace the cartridge with a new one.

The product comes with an installer program that can also be used to set security levels. You are also supplied with a toolkit that can handle partioning and batch formatting. There is also wide selection of utilities for the installation of the drive and managing data.

As well as a huge storage capacity the drive also has transfer rates between 2.0Mb per second and 5.0 Mb per second in burst mode, if your machine can handle it! If you need this sort of storage space, contact Ramiga International on ☎ 0690 770304 for more information.

Beeb's trio of computing shows

It must be a sign of these technological times – the BBC, after a long absence, is set to air not one but three programmes introducing the advantages of computers and Information Technology.

The Net, from April 13th on BBC-2 at 8.00pm, will attempt to combine user-friendly advice and distinctive state-of-the-art computer graphics to tap into the expanding world of the computer. *Rough Guides* presenter, Rajan Datar, and *Radio 4*'s Susan Rae will be hosting the show. The first kicks off in a controversial fashion, as Rajan reports on German anti-fascists hackers who clash regularly with Aryan groups and fascists on bulletin boards.

The Big Byte starts April 3rd at 12.15pm, on Radio 5, and will be a fast-moving computer magazine with wide appeal. This show will presented by Gareth Jones, from ITV's *How 2*, and games writers from Sega and Nintendo, Nick Stroud and Steve Collett.

Computing For The Less Terrified is a user-friendly guide to computers. The series starts on BBC-1 on May 22nd at 11.00am, with a look at word processors. They will also interview scriptwriter Debbie Cook, who explains how she has found computers helpful in her work.

NEW FUTURE SHOW

The Future Computing Show, Earls Court 2 London 26-30 October 1994, will be the computer event of the year – your chance to get your hands on all of the latest computer equipment and software. The show has the full support of Future Publishing, so expect us and our sister magazines to be there in force.

"Future Computing 94 has been designed to give the leisure computing industry what they want," explains Chris Down, Show Manager. "It is a direct response to their needs for a show that offers the consumer an opportunity to get their hands on technology they have previously only been able to read about." You can expect to see some examples of major technological developments, particularly in the field of multimedia, and find some real bargains at the show. We'll let you know more about who will be there and what they will have to show you, nearer the time.



The Future Computing Show – more than just a show, it's a way of life.

Commodore deny AAA shelved rumour



Commodore's Marketing Manager Dawn Levack, sick of "hearing all this rubbish" about Commdore having to shelve their AAA chipset.

Despite rumours circulating among developers and over the bulletin boards, Commodore's David Pleasance recently affirmed their commitment to the launch of a high-end Amiga workstation incorporating the AAA graphics chipset.

A beta-test version of the chipset – the next stage in Amiga graphics development – was recently blown into silicon and was found to behave favourably under tests. However, rumours have been circulating that Commodore simply lack the money to develop AAA further (the costs of blowing a unique chip design into silicon are prohibitive). According to the rumours, AAA has been shelved for the time being. Commodore's Marketing Manager Dawn Levack told *Amiga Shopper* that this was just "not true".

She went on: "I keep hearing all this rubbish. If that was the case, it's certainly nothing I know about here, and I *would* know about it." Even if the chipset does get finished, the rumours suggest, it will be out of date by the time it comes to market. The original promised specification merely promised "more of the same" – more colours and higher resolutions, in order to keep up with Mac and PC graphics developments.

However, David Pleasance, at the Premier Vision seminar on 12th March, told an audience of video and multimedia professionals that the new technology would incorporate hardware facilities for 3D rendering and texture mapping.

A vast part of Commodore's income at the moment comes from sales of low-cost computers and consoles. Facilities such as 3D rendering and texture mapping are planned for many of tomorrow's consoles, and it may be that Commdore have altered the specification of AAA in order to compete.

At any rate, we cannot expect to see the new Super Amiga on sale before spring next year, Dawn Levack told us. Based around a Reduced Instruction Set processor, it is planned to be MS-DOS and Windows NT-compatible, as well as running Amiga software – all this at five times the speed of a top-of-the-range Pentium-based PC. We await it eagerly.

New products for video enthusiasts

JCA Europe Limited have introduced three new video products, the Neptun-Genlock, VideoScan and the TBC – Enhancer.

The Neptun-Genlock is a genlock that has a number of useful features. You can use it to fade between Amiga graphics and video pictures either automatically or manually. To further enhance its fading abilities, the product also has an alpha channel. This can also be used to produce smoother edges on computer images, by using semi-transparent pixels to reduce the amount of aliasing. You can also control external devices through your machine's serial port, and fine-tune the picture quality by balancing the image's Contrast, Colour and Luminance values. The Neptun-Genlock is Compatible with the VITC-Timecode and costs £575.

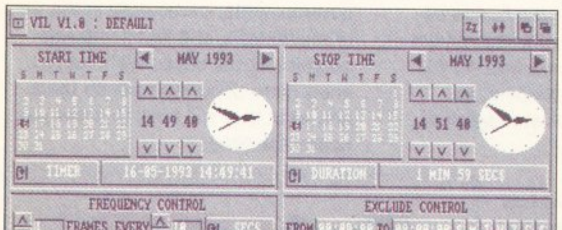
The TBC – Enhancer can be used to increase the signal quality of composite and Y-C signals, by splitting, filtering and then converting them to a VCR-suited signal. The TBC – Enhancer is available for £595.

VideoScan is an Integrated Desktop Video System costing £1,150. JCA are confident that this product has the power to transform your Amiga into a fully-featured multimedia workstation. Its features include:

- A special effects generator with several automatic or manual wipes.
- Genlocks graphics to Hi8, Beta or S-VHS video sources
- Dissolves between Amiga and video sources
- Records Amiga graphics to video without the need for a video signal

All of these products are available from JCA Europe Limited on ☎ 0734 452416.

Excellent value video bundle



Gain complete timing control over your video deck with Video TimeLapse, now bundled with Simpatica.

Simpatica, the popular single-frame video rendering system for the Amiga, has become even better value now that *Video TimeLapse* is being bundled with it.

Video TimeLapse, which until recently cost £199, gives you complete timing control over a professional-level video deck. With it you can create those stop motion special effects, such as racing clouds or decaying fruit, which are common in popular science programs. Further hardware, such as motion or heat sensors, can be plugged into *Video TimeLapse* and used to trigger recording. In this way the product can be used as a monitoring system in security and medical applications.

The Simpatica and *Video TimeLapse* bundle costs £350. An upgrade for owners of Simpatica version 2 is free, while owners of earlier versions can get one for £49.95. For more information call Optonica ☎ 0455 558282.

COMMODORE AUSTRALIA SHUT DOWN

Commodore Australia has gone into administration. All of its business activities are being handled by an agent.

One of the main reasons for the comapany's financial downfall is believed to be its large amount of excess stock. The release of the A1200 has now made much of the Australian branch's stock, mainly A600s, obsolete.

At a meeting of major creditors, Mat Donnelly, of the chartered accounts Ferrier Hodgson, was appointed by the company's two largest creditors (Commodore International Ltd and a major Australian bank) to review the financial position.

In a statement to the press, Commodore International's Vice President commented: "We are restructuring operations in the Asia/Pacific region including the consolidation of certain sales operations to gain increased efficiencies. Commodore's future business and existing customer base in Australia will now be serviced on a regional basis through Commodore Asia/Pacific Ltd."

Commodore's Asia/Pacific division is actually based in the USA, but at least Australian Amiga users will not be left to fend entirely for themselves.

STATESIDE SNIPPETS

Amiga developments, particularly in video and graphics, continue apace in the USA. R Shamms Mortier gives you the hot news.

FRACTAL MUSIC

MusicLab-FX is a wonderful music program from Digital Expressions Research that sells for $40.00. It develops music compositions based upon fractal algorithms and the fractal imagery associated with them. Then, as you watch the imagery on your Amiga screen, it is translated into a playable score. The player can determine whether IFF internal samples or eight channels of MIDI are used. Digital Expressions ☎ 0101 414 733 6863.

ALADDIN TOOLS

ADSPEC Programming's *Aladdin-4D* 3.0 is the newest version of a fine Amiga 3D/4D software program. The new *Aladdin-4D* is open ended, meaning that the toolkit is infinitely expandable – tools can be added at any time by the developer, or by interested third parties. What this means is that the ADSPEC *Aladdin-4D* Newsletter, *Aladdin's Lamp* (which comes out four times a year on disk and paper for $40.00 a year), can now be a place to give the user new tools for the program! The first newsletter of 1994 contains four completely new tools, and there will be at least one new tool in each edition of the *A4D* newsletter. A new tool called *Fountain* that will knock you off of your chair is coming in an *Aladdin* upgrade in March. Watch out for our review next month. ADSPEC ☎ 0101 216 337 3325.

INTERWORKS GRAPHICS

Look out for InterWorks being much more involved with Toaster interfacing in the future (which means LightRave for you PAL users). Soon we'll see *Render Farm* software that will enable chained Amigas to render in harmony. We'll also be able to purchase a very new Toaster rendering utility that will enable *LightWave* animations to be *instanced*, which enables you to duplicate objects and object motions on a path without having to see them on the edit screen first. Othewise, movement is slow. With instancing, what you see on the edit screen is not the whole story, and the rendering time is where the work is accomplished. InterWorks ☎ 0101 909 699 8120.

OPAL – WE'RE STILL WAITING

According to my conversations with the executives at Centaur Software in California, the distributors of the OpalVision products, we won't see the Opal FrameGrabber unit for another four months or so. The good news is that the other two OpalVision utilities, the OpalVision Suite and the Roaster Chip, will both be on the market starting with the NAB convention on 20 March. Centaur Software ☎ 0101 213 821 5995.



With Fountain you'll be able to create stunning "particle" animation effects in Aladdin 4D.

IT'S A-"LIVE"...

The A-Squared LIVE! board was the very first video manipulation board on the market, beating the Toaster by about two years. The board has now been taken over by another company, Argus Associates in California, who promise to do improve on A-Squared's poor customer support reputation. What's more, LIVE! is being upgraded to work in the A3000 and the A4000 ($595). There's even a new chip upgrade available for A2000 users ($59.95). There is a wealth of creative software already on the market that addresses the LIVE board, and more may follow once it's re-released. New manuals and new software complete the deal. Argus Associates ☎ 0101 510 724 8633.

OXXI-AEGIS' MULTIMEDIA

I am playing around with the beta-14 version of *VideoStage Pro* from Oxxi-Aegis. This latest work of Gary Bonham (the inventor of ANIM compression) is meant to address the bulging multimedia market. It is capable of creating a host of on-screen events in any resolution, complete with wipes (over 50) and sound. It executes ARexx scripts, controls genlocks, places EPS clipart brushes, corrects "hot colours", puts text over IFF backdrops, includes ColorFont support, needs no special fonts for anti-aliaising, runs IFF animations... and so on. Oxxi-Aegis ☎ 0101 310 427 1227.

Perspective – Amiga

This is a new section of the magazine where we invite key figures in the industry to air their views on a topic they consider of vital importance to the Amiga community. This month – Jeremy Rihll, managing director of Digita International, who has a few words to say about shows

Today, good Amiga dealers are few and far between. With so much mediocre Amiga product and so many vanishing dealers, it's impossible for any discerning Amiga owner to properly evaluate software. Let's face it, you Amiga users are a pretty demanding lot.

At this crucial time, the Amiga and great Amiga products need evangelising. Digita International, Power Computing, Electronic Arts, Soft-Logik, HiSoft, Softwood, GVP, Micro Systems and Europress are just a few of the companies producing great Amiga products.

In the 80s, Europress (née Database) created the first Amiga shows. As the Amiga grew, Future Publishing (creators of this fine organ) took the baton. The *Amiga Format Show* and *Amiga Shopper Show* were good for Amiga users, good for Amiga developers and great for Commodore. They were the church where people could assemble and evangelise the Amiga.

Afterwards came the console boom. The response was the Future Entertainment show, with emphasis on the "entertainment". The focus was taken away from serious computing, and from the Amiga in particular. It's not surprising that many exhibitors and some Amiga users felt disappointed.

We all know that people buy Amigas as a statement against the console kids and the Japanese corporations. You don't want to *just* play games. You don't want overpriced Macintosh software, you don't want *corporate* Windows. You want an inexpensive *home* computer, equally suited to game playing, education and productivity. That computer is the Amiga.

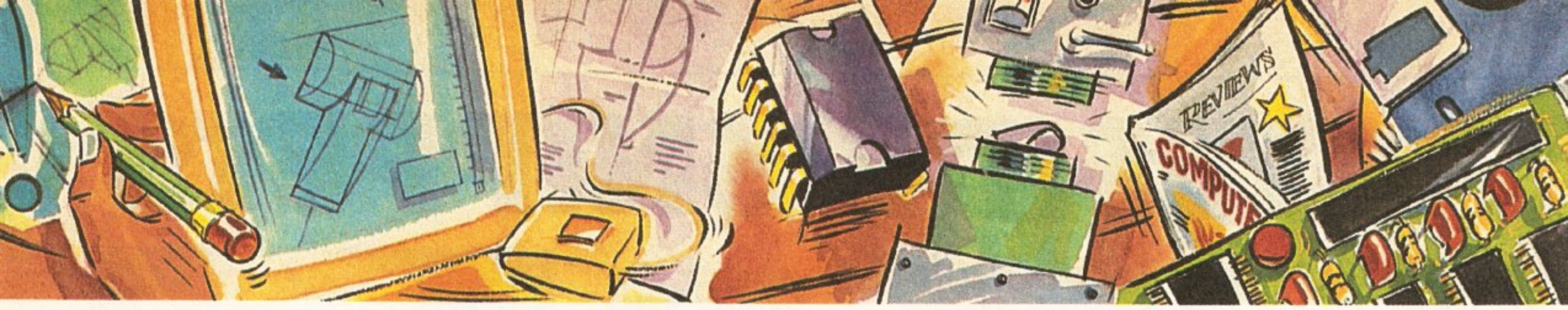
I say this: we need an Amiga-specific show, leisure and productivity, an Amiga exhibition to give Amiga users a forum to examine Amiga products, to see Commodore and to remember what makes the Amiga so special.

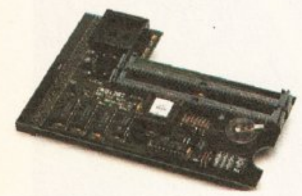
Future's next show – *The Future Computing Show* – could be a step in the right direction, bringing the focus back to computers. But the one I'm looking forward to is Amiga-specific, and I've just heard a rumour that an announcement for one late this year is imminent – let's hope it's everything we need.

The Amiga shows I've experienced in North America, Germany and Australia set the challenge. They are carnivals, celebrations of Amiga. Surely in this country, home of the largest number of Amiga owners in the world, we can do better?

For the Amiga, restoring the zest of the past is an achievable task. It takes faith and courage. Dreams can be restored and kept alive. Give us an Amiga Show, and we, its supporters, will give you the dream.

It was John Stuart Mill who once said: "One person with a belief is equal to a force of ninety-nine who only have an interets." We are believers, after all – that's why we bought Amiga.





PC1202-8

Power Computing and DKB have joined forces to produce the ultimate A1200 32-bit memory expansion. The PC1202-8 uses the latest industry standard 32-bit Simm technology which allows you to use 2MB, 4MB and 8MB modules. Simply by adding either a PC1202-8 to your Amiga 1200 will increase its processing speed by 219%, comes with real-time battery backed clock and optional FPU available.

Bare

PC1202-8 .... **£79.95**
PC1202-8 + 68882 20MHz **£99.95**

With 2MB

PC1202-8 + 68882 no FPU ... **£159.95**
PC1202-8 + 68882 20MHz ... **£179.95**
PC1202-8 + 68882 33MHz ... **£199.95**
PC1202-8 + 68882 40MHz ... **£225.95**

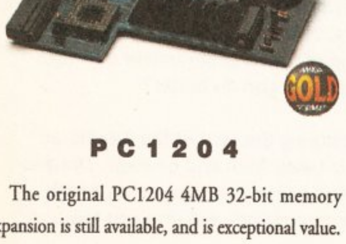
Trade in your 2MB Simm to upgrade to 4MB or 8MB, telephone for details.

With 4MB

PC1202-8 + 68882 no FPU ... **£239.95**
PC1202-8 + 68882 20MHz ... **£259.95**
PC1202-8 + 68882 33MHz ... **£275.95**
PC1202-8 + 68882 40MHz ... **£299.95**

There is no need to throw away the board if you want to upgrade from 4MB to 8MB. Its simple, just buy an extra 4MB Simm.

Extra 4MB Simm **£159.95**



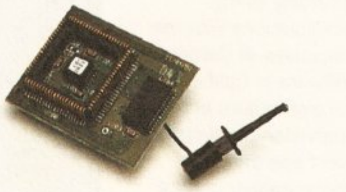
PC1204

The original PC1204 4MB 32-bit memory expansion is still available, and is exceptional value.

PC1204 + 68882 50MHz **£319.95**

New Midi Interface

Midi Interface (new Midi chip) .. **£19.95**



MegaChip Ram

Increase your Amiga 500/2000 chip RAM to a total of 2MB. MegaChip does this by using its own 1MB of RAM and drawing extra memory from any other RAM you have installed in your Amiga. No soldering is required.

MegaChip RAM **£159**



A500 Memory

A 4-chip 512K RAM expansion with a battery backed clock. Free software included. (A500+ compatible)

A500 Card with clock **£29**

A500 8MB

Expand your Amiga 500 from 2MB to 8MB of RAM. Plugs into the side slot, full auto-config, and through port.

2MB Board **£139**
4MB Board **£219**
8MB Board **£299**

Memory Expansions

We manufacture a vast range of memory cards for the Amiga 500, 500+, 600, 1200, 1500, 2000, 3000 and 4000. Please telephone us for prices and availability.

DKB 3128

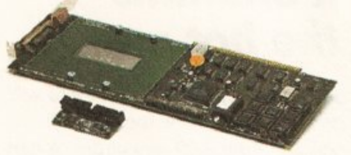
Up to 128MB of RAM on your Amiga 3000/400 using 4,8,16 and 32MB Simm modules. This is a true Zorro III 32-bit memory board.

DKB 3128 0MB RAM **£279**

Octogen SCSI-2

SCSI-2 board for the Amiga 2000 including memory expansion capabilities of up to 8MB.

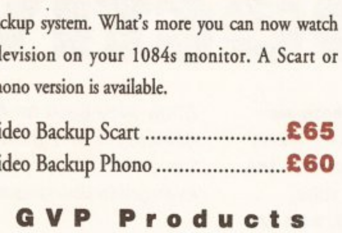
Octogen SCSI-2 .... **£129**



DKB 4091

The DKB 4091 (licensed by Commodore) SCSI Host Adaptor is a high performance board that connects up to seven SCSI devices to your Amiga. The DKB 4091 features: Full Zorro III implementation, fast SCSI-2 implementation, SCSI internal connector and ribbon cable, high density SCSI-2 external connector, direct memory access (DMA) and hardware to install a 3.5" hard drive on the board.

DKB 4091 .... **£299**



Video Backup

Use a VCR as a backup storage device. Two hundred Amiga floppy disks fit on to a 4Hr tape which can be used for an alternative hard disk backup system. What's more you can now watch television on your 1084s monitor. A Scart or Phono version is available.

Video Backup Scart **£65**
Video Backup Phono **£60**

GVP Products

Power Computing can supply all GVP 'High end professional' hardware and software. Please call for your requirements.

EGS Spectrum 24-bit card (2MB)... **£389**
G-Lock (PAL video genlock) **£299**
HC8+ SCSI controller.................. **£129**

Hard disks available from 52MB to 1GB

Co-processors

All maths co-processors include crystals.

20MHz... **£40**
33MHz... **£69**
40MHz... **£89**
50MHz (PGA) **£154**



Disk Expander

Disk Expander is an innovative program for a Amiga users. With this software solution you ma double the capacity of your floppy disk or ha disk drives. The installation process takes only few seconds and afterwards DiskExpander wor invisible in the background. The compression rati vary from 30% to 70% depending upon the use compression-algorithms and upon the kind of data.

The easy-to-use graphical user interface guarante that even the inexperienced user is able to use Di Expander immediately without any problem DiskExpander does not only expand the capacity your hard disk drive, even floppy disks now have storage space of approximately 1.5 megabytes.

The concept of DiskExpander was designe under the aspect of maximum data security an high compression speed. The user decides which extent the data is condensed by choosin high or medium compression libraries and thu has direct influence on the processing speed.

- Can add 50% to your hard drive capacity at a strol
- Fast compression and decompression
- Flexible and expandable as new compressio libraries are developed
- Works with all drives, including SCSI, IDI Floppies, and even the RAM disk
- Reliable in tests - no data corruption
- Once installed the program is transparent to the us
- Works on any Amiga and any KickStart

Disk Expander **£35**

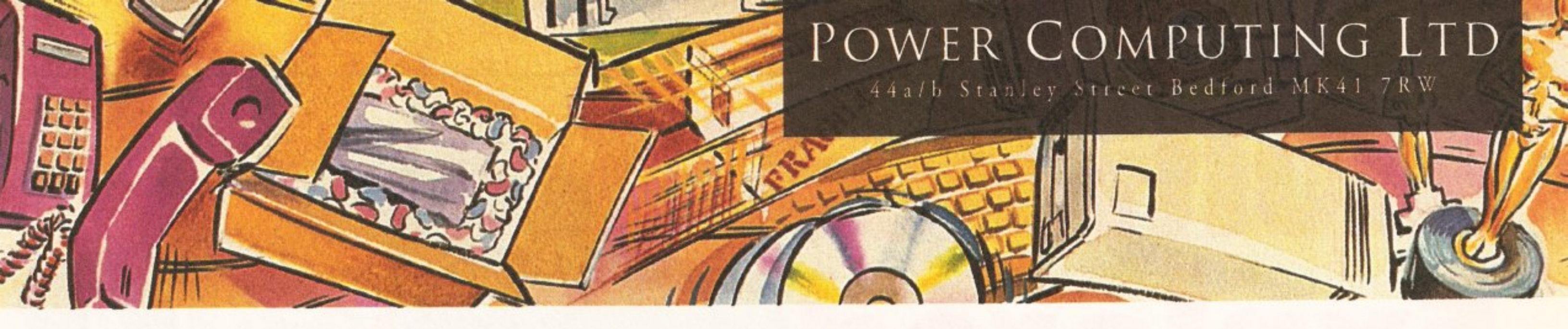
Tandem CD-DE Carc

The Tandem CD-DE includes these features

- For 1500/2000/3000/4000
- Supports Mitsuma LU005 CD-ROM & FX001I double speed CD-ROM drives
- Supports Syquest 3.5" drives
- Supports IDE hard drives
- Play audio CD utility
- Requires KickStart 2.04 and above
- Includes cables, software and manual

Tandem CD-DE card **£69**
Tandem CD-DE & Double Speed CD . **£229**

Goods are sold subject to our standard terms and conditions of sale and are available on request. Specifications and prices are subject to change without notice, and all trademarks are acknowledged. All Power Computing Ltd products come with a back to base 12 month





Calcom v.32 bis

xternal Fax & Data modem
upports up to 57,600 bps
ull Haynes AT command set supported
upports class 1, 2 and 3 fax commands
all back security
ptional power on auto-dial
upports error correction + detection
eased line support
upplied with Amiga and PC software for
Vindows
ll cables & Power supply included

alcom v.32 bis **£169**
alcom v.32 bis inc. TrapFax......... **£199**



Fargo Primera Printer

Now you can produce stunning, high quality output on paper, transparency film or even T-Shirt transfer from your Amiga. The Primera colour printer, recent recipient of countless awards in the IBM-PC and Macintosh markets is also the perfect companion to any Amiga. Primera uses wax thermal transfer technology, a technology usually associated with much higher priced printers. Some of the features include, software drivers for Amiga, PC and Macintosh, optional photo-realistic upgrade kit (dye sublimation) and monochrome ribbon cartridges available for text printing only.

Primera printer............................ **£649**
Photo realistic upgrade kit.............. **£199**
Photo realistic refill kit (100 prints)... **£250**
Photo realistic refill kit (25 prints) . **£79.95**
4 colour ribbon (80 prints).......... **£38.95**
3 colour ribbon (115 prints) **£38.95**
Monochrome ribbon (400 prints).. **£31.95**
Primera paper (A4 200 sheets) **£18**
T-Shirt transfer paper (A4 10 sheets) .. **£17.95**
Primera & Studio DS software **£699**
(Studio software is a true 24-bit printer driver)



XL Drive

The XL Drive can be used with any Amiga Computer, and allows you to store a massive 1.76MB on a high density floppy diskette. The drive can also act as a standard 880K drive and can read and write disks written on an A4000 internal high density drive. XL Drive requires Kickstart 2 or above.

XL Drive external..................... **£89.95**
XL Drive internal (all Amigas*) **£79.95**
XL Drive internal A4000 .... **£89.95**

PC880B Drive

The new updated PC880B is the most impressive disk drive of its kind on the market. The drive includes a strong aluminium casing, an anti-click device, virus blocker, Cyclone compatible chip and the latest built-in backup hardware which allows X-Copy to copy and verify. What's more you can now control these features through your mouse, so there are no more annoying switches to use.

PC880B with Blitz Amiga................. **£70**
PC880B with Blitz & X-Copy........... **£80**
PC880B 1.76MB Upgrade........ **£49.95**

Features	PC880B	Amitek
Anti-click	●	●
Anti-virus	●	●
Aluminium extrusion	●	
Sony mechanism	●	●
Isolation switch	●	●
Thru'port	●	●
Upgradable to 1.76MB	●	
Cyclone compatible chip	●	
Built-in backup hardware	●	
Mouse operated	●	

PC880E Drive

This drive is a high quality external floppy drive at a fraction of the price. As with all of our drives the PC880E has a thru'port, disabling switch and 12 month guarantee

PC880E Economy Drive.......... **£49.95**



Internal Drives

We use the same drive mechanisms as Commodore so that you get the kind of reassurance at a cheaper price than other internal drives on the market.

PC881 A500 Internal drive............... **£40**
PC882 A2000 Internal drive............ **£40**

SCSI/IDE Drives

We can supply SCSI or IDE 3.5"/2.5" hard drives in many different sizes. Including cables and installation software.

80MB IDE 2.5" Internal **£179**
120MB IDE 2.5" Internal **£229**
170MB IDE 2.5" Internal **£270**
52QMB SCSI/IDE....................... **£169**
80MB SCSI/IDE......................... **£179**
160MB SCSI/IDE....................... **£249**
200MB SCSI/IDE....................... **£349**

Floptical Drive

The Floptical stores 20MB of data on a re-writable 3.5" disk. (A SCSI interface is required)

Floptical A2000 Kit...................... **£289**
Floptical A500 Kit....................... **£389**
20MB Floptical Diskette **£25**



Syquest Drives

The new 3.5" removable hard disk from Syquest stores 105MB on each cartridge, with an accessing time of 17ms. An internal and external version is available. (A SCSI controller is required)

3.5" IDE Internal **£499**
3.5" IDE External......................... **£579**
3.5" SCSI Internal **£539**
3.5" SCSI External **£599**
3.5" 105MB Cartridge **£79**

Power Optical

128MB Optical Internal................ **£779**
128MB Optical External **£879**
128MB Optical Disk **£40**
SCSI Controller A2000................. **£129**

Dual Drive

Our Dual Drive is packed with the many features of the PC880B whilst having two drives using only one port. This is another original from Power.

Dual Drive **£125**

X-Backup Pro

X-Backup Pro (Hardware designed by us) **£29.95**

Order Form

Name ....
Address ....
....
Telephone No. ....
System Owned ....
Description ....
....
....
I enclose a cheque/PO for £ ....
Credit Card No. ....
Expiry Date ....
Signature ....

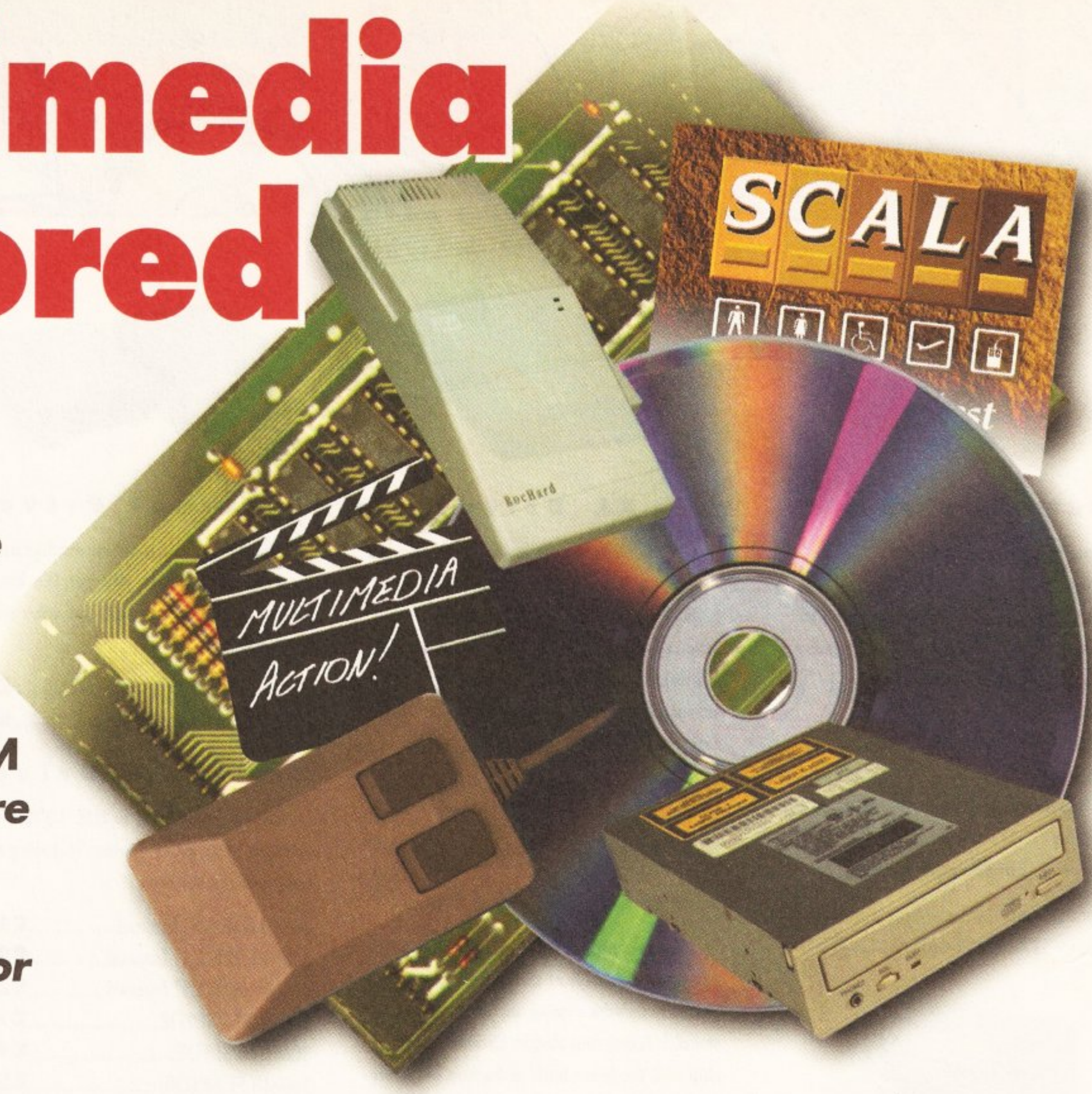
Delivery next day £5.00 2-3 days £2.50 Saturday £10.00 deliveries are subject to stock availability.
Please make cheques payable to Power Computing Ltd

guarantee. Prices are valid for the month of publication only. E & OE. All prices include VAT. Power Computing Ltd 1994



TEL 0234 273000
FAX 0234 352207

Multimedia Explored



Multimedia is the next big thing in computing. It's already here on the Amiga, and this is your chance to get involved. Find out how to fit a CD-ROM drive, what software you can use, and which authoring system is the best for your needs.

Multimedia – you've no doubt heard all the hype. Now's your chance to find out what it's really all about, and just where it's going to take us. You can rest assured that it will be taking us places. Some people are touting multimedia as the next revolution in computing. That's perhaps taking things a bit too far; after all, we're not really talking about radically new technology, but rather a shift in the emphasis of how that technology is used. Sure, technology is improving – CD-ROM drives provide access to previously undreamt of quantities of information, graphics and sound reproduction seem to increase in sophistication almost with each new edition of *Amiga Shopper* – but it's the uses to which it is all now being put that will *really* change things.

Multimedia is the thing that will really bring computers to the masses, giving access to vast quantities of information – presented in a clear, easy-to-use and attractive manner for everyone. Read on, and discover how the Amiga is already riding the crest of the multimedia wave – you'll be surprised at the big names that are already using it, and at the diverse applications to which it has been put – and learn how you can get involved yourself. In the following pages you'll learn just how you can hook up a CD-ROM drive to your Amiga. You'll also find a definitive listing of every single serious multimedia CD-ROM available for your machine. And if that wasn't enough, we've also got reviews of *Helm* and *MediaPoint*, two hot new multimedia authoring packages. We test them in full, and see just how they compare to their main competitors – *Can Do* and *Scala Multimedia*. Setting up a system capable of running multimedia applications can be expensive; that's why we've provided you with the opportunity to achieve your dream system for free. Turn to page 18 to find out how you can win one of two complete multimedia kits, each comprising a CD-ROM drive and SCSI controller, hard disk, 4Mb of memory and a copy of *Scala Multimedia 300*.

BLITS & BOBS

If you were to store just straight text on a single CD, you'd be able to fit on around 70 million words, or 700 novels – and that's before you've used any compression techniques.

THE CD-ROM OPTION

You can now pick up a CD-ROM drive for as little as £200. You don't need one to get into multimedia, but if you have one you're definitely there. CD-ROM drives aren't perfect. They're relatively slow, transferring data at 150K per second (or 300K for the more expensive dual-speed model) as compared with the 1Mb per second or so common with hard disks, and of course you can't save any data to a CD. No, the great strength of CDs is their capacity. Each one can hold 660Mb of information – that's the equivalent of more than 750 floppy disks, or 100 average-sized hard disks. Access to this quantity of information has got to be a good thing. Take a look at the box on page 16 to find out about the variety of titles currently available.

No matter which model of Amiga you own, there's a CD-ROM drive to suit. Just as with a hard disk, you'll need a hardware interface (also called a controller) before you can connect one to your machine. By far the most common interface is SCSI (Small Computer Systems Interface), as found with most hard disks (though not those used in the A600, A1200 or A4000). It's possible to "daisy chain" several SCSI devices together on to the one controller. If you already own a SCSI hard disk, then adding a CD-ROM is a simple matter of plugging it in to the connector at the back of your drive.

We used a Toshiba XM4101 drive, which has an access time of 330 milli-seconds and is XA compatible (the XA stands for eXtended Architecture, and means that the drive can perform such feats as transferring audio data across the SCSI bus, as well as behaving like an ordinary drive). The drive costs £219.99 from the First Computer Centre (☎ 0532 319444), who provide a range of drives ranging in price from £194.99 to £339.99. The Toshiba worked perfectly with our A4000 and A4091 SCSI-II controller card.

If you own an A1500, A2000, A3000 or A4000, you now have the option of going for an IDE-compatible drive. To do this you'll need both an IDE controller and the drive itself. The Tandem interface card, from bsc and Alpha Data, costs in the region of £70 and is compatible with the Mitsumi LU005

SECOND THAT MOTION

Full motion video is now a reality. Commodore's add-on module for the CD32 is on sale for £199.99. With it, those lucky CD32 owners can watch up to 74 minutes of video on a single CD, all played back at a resolution of 342x248 with a 16.7 million colour palette. The quality is that of S-VHS video tape.

Jealous? Well, now you needn't be. German-based company Helfrich International are set to release Pegger Plus, a Zorro II card that will decompress MPEG video in real-time and provide it as an RGB output. In other words, you can connect a CD-ROM and one of these cards to your machine and you've got yourself a full motion video playback system, compatible with all the CD32 discs.

Back in issue 34 we reported that Paramount, in conjunction with Philips, were releasing their first 50 titles in a format incompatible with the White Book standard – a format previously agreed upon by all major companies in Video CD. Well, Commodore have managed to tweak the CD32 that it will play both White Book standard Video CDs as well as the non-standard Philips format. Phew!

and FX001D CD-ROM drives. Scan through the ads in this issue to find the best price – both Gasteiner (☎ 081 345 6000) and First Computer Centre (☎ 0532 319444) sell these interfaces. Suppliers will give you a package deal of controller plus drive, with drive prices starting at around £200. A particular advantage of the Tandem card is that with it you can also hook up an IDE hard drive.

The solution is even easier for owners of an A500 Plus or an A500 with 1Mb of Chip RAM – the A570, the only official Amiga CD-ROM drive from Commodore. It is a fully self-contained unit, including its own controller, and plugs directly into the side expansion port. The disadvantage of this set-up is that you cannot connect a hard disk at the same time. The A570, like the CDTV, never really took off. As a consequence, you can pick one up cheaply. Silica Systems (☎ 081 309 1111) are selling them for £99. Scour the ads in this issue for the best deal.

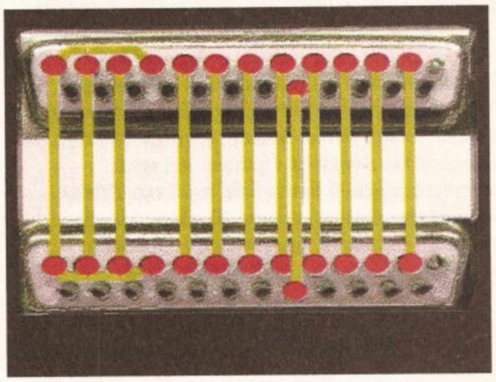
All of this rather leaves the A600 and A1200 owner out in the cold. But help is at hand. For one thing, The First Computer Centre (☎ 0532 319444) is promising the imminent arrival of an IDE controller that will connect to these machines' PCMCIA slot. In the meantime, there is always the option of *Parnet*, a system that enables you to hook a CDTV to your Amiga and control it as you would an ordinary CD-ROM drive. Given that you can pick up CDTV units at bargain prices these days, this could work out to be a pretty cost-effective option. Again, shop around for the best deal you can possibly get on a CDTV.

Parnet is a piece of public domain software, available from all good PD libraries (see page 98 for a comprehensive listing of all libraries). We got our copy from 17-Bit Software (☎ 0924 366982), on disks number 2603a and 2603b. *Parnet* contains programs that must be installed both on your host Amiga and on the CDTV unit you are going to be communicating with. For this reason you'll need a floppy drive connected to your CDTV unit, too. *Parnet* also comes with instructions on how to wire up a parallel cable (alternatively, you can buy a ready-made cable from Almathera ☎ 081-687 0040 for £19.95, which also comes with the *Parnet* software). It is this that is used to connect the two machines together: the cost is negligible, and you should be able to get the parts from most good electronics shops, such as Maplin.

After physically attaching your CD-ROM drive, you'll need a CD-ROM filing system in order to access the information on the disc. As with most things computer-related, there are several kinds of CD-ROM formats. The most common standards are the ISO-9660, Macintosh HFS and the Rock Ridge Protocol. The two you are most likely to encounter are ISO-9660 and HFS formats. The ISO-9660 is used by both the Amiga and IBM-compatible machines. The HFS format is used by the Macintosh range of computers.

Fortunately, you can access most of these formats on the Amiga, with the right software. We use the *AmiCDROM* filesystem – as it is PD it's widely available, for free. It's also supplied with all CD-ROM drives sold by the First Computer Centre. It comprises the **CD0** device, **cdrom-handler**, a **mountlist**, some utilities for playing audio CDs, and files containing information of interest to developers. The **CD0** device needs to placed in your **devs/DOSdrivers** folder, just like any other AmigaDOS driver (**DF0:**, **DH0:**, **PC0:** etc.). You'll also have to copy the **cdrom-handler** to your **L:** directory and add some new lines to your **mounlist** and **startup-sequence**. You may also need to alter the **mountlist** in order to specify the correct **SCSI** device. Once you have made all the necessary changes to your boot disk, and rebooted your machine, you can use the CD-ROM drive as you would any another AmigaDOS device. Full installation instructions, and an install script, are supplied with the software. You'll find a review of *AmiCDROM* on page 92.

continued on page 12



17-Bit Software's disk 2763 provides help on setting up Parnet, including diagrams like this.

Fitting a CD-ROM drive – your options

Amiga	SCSI drive	IDE drive	A570	Parnet +CDTV
A1000	n	n	n	y
A500	y	n	y*	y
A600	n	n	n	y
A1200	n	n	n	y
A1500	y	y	n	y
A2000	y	y	n	y
A3000	y	y	n	y
A4000	y	y	n	y

Note: SCSI option also requires a SCSI controller. For the IDE option you'll need the Tandem IDE controller.
**** A500 Plus or A500 with 1Mb of Chip RAM.***

THE EXCELLENCE OF MULTIMEDIA – COMMODORE'S AMIGA CENTRES

St. David's Day marked the opening of Commodore's first *Amiga Centre Of Excellence* – a key project that will further strengthen the Amiga's already impressive grip on the multimedia business. The Prince of Wales was there via video phone link to open what is a significant development for the Amiga. It's just the first of many, with the next one being planned for London.

The idea behind them is simple – to create centres of expertise which are able to offer consultation services to those interested in multimedia, and which are capable of putting together complete solutions for clients. They intend to stock the very best of the wealth of multimedia equipment out there for the Amiga – everything the professional multimedia user needs, all in the same place.

This first centre is run by Ramiga International, distributors of high-end video, sound and multimedia kit, and experts in all things Amiga. Heading up the operation are Bill Owen, one time Commodore education guru, and Peter Sumonivic, a software engineer who has been involved in developing a multimedia application in conjunction with the Clwyd tourist office.

Demonstrations of many different multimedia applications were given on the day, including the The London Transport Museum's application, a forthcoming History Of The Underground CD and a National Trust archive of Stove Gardens, containing photographs, digitised etchings and historical information. Ramiga are hoping to carry off a coup with the development of an educational CD for medical students. It's being developed with the help of two top surgeons, and its acceptance could mean Amigas in every hospital and medical college in the country.

It was the CD32 with its full motion video unit that surprised most people. Equally surprising to many was the information that Amigas are used for training and demonstration throughout the world, at such established instutions as Universal Studios, the BBC, the London College of Printing and the Royal Air Force. For more information, you can contact Ramiga International on ☎ 0690 770304.

MediaPoint

High-end authoring system Scala now has some competition – MediaPoint. John Kennedy sees just how presentable it really is.

Product: MediaPoint
Price: £329.99
Supplier: Meridian

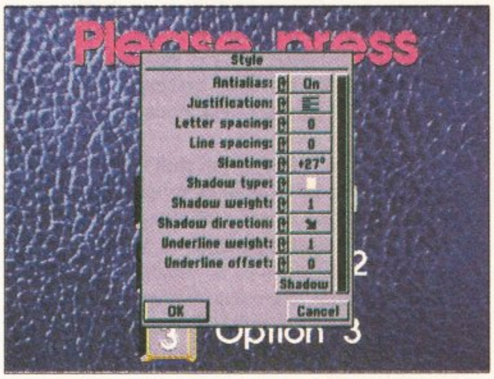
The world is changing. Information is rapidly becoming the most important commodity available, and there is a huge scramble to develop new and exciting ways of delivering it. The Amiga has always been at this new frontier, with its wealth of multimedia software and IFF, its accepted file standard. Perhaps the most important program in the field has been *SCALA*, but now the makers of *Real 3D* have produced their own version of what Amiga multimedia should be. Is this the *SCALA* killer?

WHAT CAN IT DO?

So what can *MediaPoint* do? This is a question that is better phrased, what *can't* it do? as this has got to be one of the most powerful Amiga programs ever. Like many loyal Commodore fans, I've watched Amiga software come a long way, and this is definitely one of the *third generation* packages available. Gone are the rather flaky editing screens, and a sense that a crash was imminent at any minute. At last we're getting software that has been designed to be used by people. The main editing screens are *oh-so-nearly* standard Amiga screens, but not quite. The official style guide has been followed quite liberally, but for once the result is very pleasing. The purpose of all gadgets and any file requesters is blatantly obvious, and this helps keep manual references to a minimum. For a program this complex, this is almost unheard of.

Almost too suspiciously like *SCALA*, the main screen has a relaxing purple tinge to it. On the right are the various objects that will make up your project, on the left the list of events. Making something happen is easy – drag an object from the right to the left. If you drag across the ANIM object, a requester pops up asking for the name of the file to display. Fill in the details and click OK – you're on your way.

Reading from right to left in the *event slot*, the name of the animation is followed by a transition indicator. Click here and you're given a choice from dozens of different screen wipes, speeds and variations. All are extremely smooth, handling colour transitions even of fairly complicated pictures perfectly on AGA machines. The last set of numbers are duration markers, and clicking here will bring up one of *MediaPoint's* neat asynchronous requesters to adjust the various times. It's asynchronous because once the requester is open you can use it to alter the time of any event: you don't need to close it and re-open it



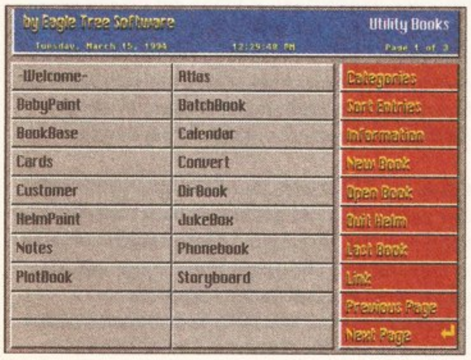
Text support is comprehensive, with drop-shadows and smoothing options.

Helm

Graeme Sandiford investigates another authoring system that can do it too.

The Amiga has long enjoyed a selection of some of the finest multimedia authoring software available on any computer platform. Recently the Amiga made a great leap forward in performance, with the introduction of the new AGA machines. Multimedia software is just beginning to catch up with the new machines' abilities, with the updating of *CanDo* and *Scala* and release of *MediaPoint*.

While these old-hands are having their AGA-facelifts, Eagle Tree Software has decided to launch a completely new authoring system – *Helm*. With a retail price of £99.95 it is in direct competition with Inovatronics' *CanDo* system.



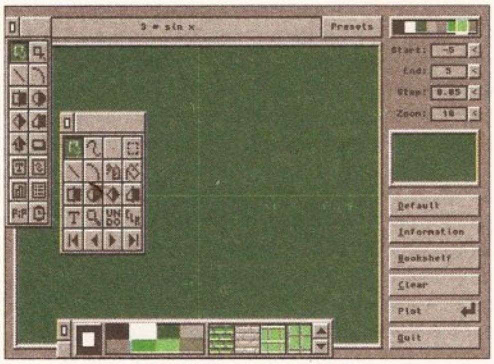
You can access any of Helm's numerous example books and cip art from the Bookshelf.

Helm has been designed for use by non-programming types. As such it is intended to be easy to use, yet powerful. One of the program's claims to fame is its graphical interface. It also takes an object-orientated approach to creating applications. *Helm* also has some painting, image processing and visual effects tools. These capabilities make *Helm* an excellent presentation tool. As well as extensive ARexx support, the program also has its own scripting language.

HOW IT ALL WORKS

Once you've decided upon the nature of your world-beating application, the first thing you must do is to create a Book. The Book is the basic unit, (the same thing as a stack in *HyperBook*). It consists of several Pages, or screens, these Pages are based on a Form, which acts as a template. Each Page in a Book can contain several objects – these can be **textfields**, **imagefields**, **buttons**, **charts**, **arrows** and various shapes. *Helm* can also add a timer to a Page, this performs a specified action or script after a set time period, a useful function for creating time-based presentations. Perhaps one of its most unusual tools is the **Pipfield**: this takes advantage of GVP's IV24 graphic card's ability to provide a **PIP** (Picture In Picture) display.

You can attach **scripts** and **actions** to each object. If you attach an **Action** to an object, each time the object is activated the **Action** will be executed. This can be anything from playing a sample or animation, to executing an AmigaDos script or changing the key colour on a chromakey. You can also get *Helm* to perform a variety of pre-programmed effects, such as **wipes**, **fades** and **mosaics**. There is a wide selection of **Actions** supplied. For more complex applications you may need to use *Helm's* built-in scripting language. This is just like programming in BASIC.



Included with Helm is this plotting program. It has lovely sine wave formulas for your applications.

Helm comes with a healthy supply of example books, so you can get to grips with *Helm's* functions by playing around with objects on each page. You can also find useful scripts and discover formulas that you can include in your own applications. The examples include the usual databases, calculators, maps, a complete paint package, Latin and Chinese phrase translators and a collection of Mark Twain quotes that are spoken aloud, if you have the **narrator.device**, and synched with the movements of the mouth of a digitized Mark Twain (á la Monty Python).

Also available in plentiful supply is clip art. The collections cover a wide selection of topics, such

for each.

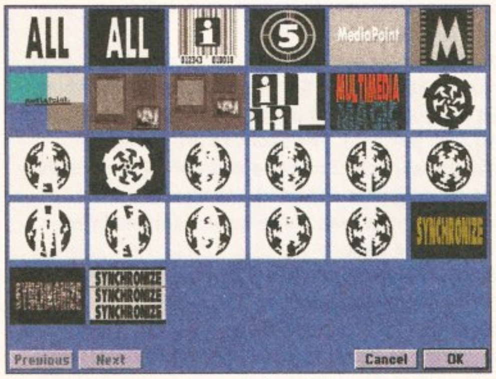
ANY OBJECTIONS?

The ANIM object is far from being the only way of getting something done. It's equally simple to add music (by way of MIDI files or sound tracker modules), static pictures, DOS and ARexx commands and audio samples.

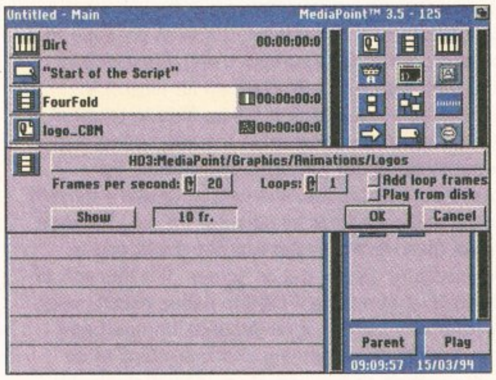
Drag and drop, drop and drop – within moments you've already got the basis for an excellent Amiga animation and sound studio. Animations can be played directly from hard drive, and with a reasonably fast Amiga (probably 68030, at least) you can theoretically record hour-long films and cartoons directly to disk at very reasonable (although not TV-quality) frame rates.

Special *MediaPoint* objects (**labels**, **gotos** and **comments**) can be added to determine how the *flow of control* through the events are determined, but the remaining objects take a little more explaining. The **XaPPs**, as Activa like to call them, are software interfaces to allow *MediaPoint* to converse with other hardware. The Studio16 **XaPP** is quite obvious, and allows you to play 16 bit CD quality audio with your productions.

The CDTV **XaPP** is a little more interesting, and requires a serial cable to run between the host Amiga and the CDTV. Alternatively, the entire application can run on the CDTV, although the limited memory and graphics modes would probably limit things a bit. In any case, with the CDTV **XaPP** running, *MediaPoint* has control over the way the CDTV plays audio CDs. This means real CD music can be used to back up a slide show, impressing anyone within hearing distance.



A good file requester... picture files are displayed on-screen to make your selection easier.



Each object has a sub-requester to determine the name of the file, and how it is used.

The associated CDXL command will play back CDXL graphics files. CDXL is the graphics and sound file format originally developed for the CDTV, where it allowed about 12 frames a second of 1/4 screen video with sound. Now we have the CD32, and the new graphic modes and faster processor mean that CDXL is much more watchable. It's going to be cropping up in more and more games. Other **XaPPs** are provided for interfacing with the Canon Ion still video playback system, the GVP IV-24 graphics card and several videodisc and videotape playback machines. It's possible to write your own **XaPPs** if you are up to a little C programming.

TURN THE PAGE

For more interactive systems, the **Page Editor** is where it's at. Hit the **tilda** key (another first for Amiga software?) and you're moved to a much more *paint-program-esque* editor. The normal approach here is to load a background screen (or automatically grab one from any other program running in the background) and then load in some button pictures. Text can also be located in any font (some excellent ones are supplied), any colour and placed anywhere. If asked nicely, it can also be made to scroll across the screen for that instant

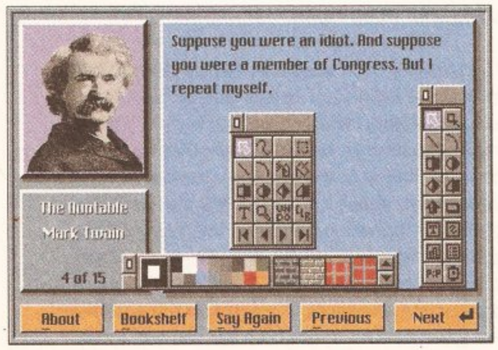
---

as animals, maps, and icons. All of the clip art and example Books are available from the Bookshelf.

HOW WELL IT WORKS

The claims that *Helm* is easy to use and extremely flexible are certainly well-founded. I found the adjustable interface a pleasure to work with. You can have a selection of toolboxes open at one time, which is very convenient as you may not need certain tools until later on in an application's development. It's also great to be able to test your objects while you are designing a page. *Helm's* object-orientated way of working is very easy to get to grips with, and certainly helps when you're trying to debug your applications.

While it doesn't have enough features to make *MediaPoint* and *Scala* feel uneasy, it certainly makes *CanDo* appear a little outdated. As well as benefiting from a better interface, *Helm* also has an edge over *CanDo* with its extensive example **Books** and pre-programmed **Actions**. While the number of **Actions** supplied with the product doesn't at first seem that important, it can actually help an inexperienced user/programmer a lot if he or she doesn't want to delve into a scripting language too often. It also has a lot more functions and a greater degree of sophistication and versatility.



You can always tell a good quote by the period of time it remains accurate.

For example, while both products make use of the *AmigaGuide* document format for their on-line help systems, only *Helm* implements links to these documents as an action. One feature that *Helm* possess that is unavailable to *CanDo* is its support for the **narrator.device**. As mentioned briefly before, you can use the narrator to synchronise computer-generated speech with animation. Unfortunately, you will need a copy of the **narrator.device** and the translator library, neither of which are now distributed by Commodore. *Helm* also has a strong advantage in the graphics department, as well as support of ILBM files, brushes and anim brushes. *Helm* also has direct support for anim5 animations – in order to include a normal anim5 in your *CanDo* applications you need to run a separate conversion program. *Helm* also has its special effects and image processing tools; it even has a custom filter requester so you can create your own (just like *ImageFX*).

Although *Helm* has some features that *CanDo* lacks, *CanDo* is still an excellent authoring system and is well suited to producing serious applications. I recommend *Helm* over *CanDo* because of its brilliant paint-package-like interface. It is easy to use and highly configurable. With the program's competitive price tag, wide range of features and versatility Eagle Tree Software is on to a winner with *Helm*.

WHAT
Helm – £99.95
WHO
Meridian Software Distribution
WHERE
East House, East Road Trading Estate, East Road, London, SW19 1AH.
☎ 081-543 3500

CHECKOUT
HELM

Requirements
Any Amiga with 1Mb of RAM, AGA is required to get the best out of the program; a hard disk also helps.

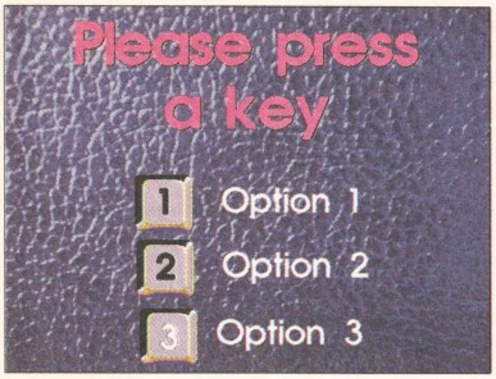
Documentation **89%**
The manual is lucid, and well laid out with sections for a quick start, reference and scripting.

Ease of use **93%**
Very easy to use. If you have used a paint package before you'll be turning out applications within an hour or so.

Features **90%**
All the usual tools and functions for a multimedia authoring system, plus a lot more.

Value **92%**
Excellent value for money.

Overall **91%**
With such a wide range of tools and excellent interface, Helm's entry into the market is bound cause a few ripples of interest.



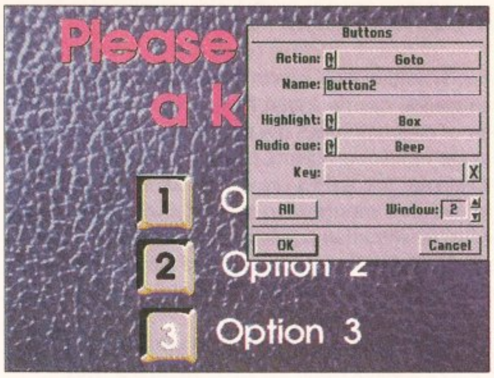
The simplest form of a MediaPoint page, featuring a backdrop display, text and three buttons.

demo look. Control over how the text appears is excellent, with all manner of justification, antialiaising and drop shadow effects. It's rather reminiscent of *Hyperbook*, but this time it works properly with Workbench 3.0.

AGA graphics modes are supported which means some rather colourful pictures are possible. That said, most of the supplied examples look excellent on any Amiga. With a little time, you can really come up with some spectacular displays which can actually look sharper and more colourful than the best television pictures. Each item on the screen can become a button, and when clicked, the flow of control is sent to various labels in the event list. This is how you create a menu – simply make the button jump to a certain label when clicked.

SCRIPTING

When you save a *MediaPoint* application, you are actually saving a special script file to disk. This is a standard text file which can be loaded into an



With the buttons on-screen, the program needs to be informed about the actions to take.

editor and examined. All the objects and pictures are mentioned, and the times can be fine-tuned here if required. If you want, it's even possible to write the script from scratch using a text editor, and then load it into *MediaPoint* for playback. Dedicated *MediaPointers* will be able to take full advantage of the program in this way: using it to react to externally gathered information. For example, a script could be written to use a modem to log into a weather forecasting service. The data could then be processed with the script and a temperature display put-on screen. It's this sort of flexibility that makes it hard to define exactly what *MediaPoint* can do...it all depends on how badly you want to do something. If it's anything to do with graphics and sound, then *MediaPoint* is the way to go.

NICE TOUCH...

MediaPoint is full of wonderful little surprises. You'll be delighted that so much effort has been put in by Activa:

- ***ANIM7 support*** – This new ANIM standard allows animations to playback much faster with 68020 and better processors. As a result playing back extra long animations from hard drive is possible, although a fast drive is essential when playback speed is critical.
- ***CDXL support*** – This combined sound and video standard allows normal Amigas to come close to *Full Motion Video*. With new software (The new version of *Art Department Pro*) starting to support CDXL, it's great to see it here. I've seen the Commodore CD32 advert playback on my A1200, and it's amazing!
- ***Real time recording*** – You couldn't be bothered with entering times for the various parts of your script to begin with? Start the recording option and press a key to set the times. It makes synchronising events to a sound track quick, easy and accurate.
- ***File Requester*** – Normally I like to see the good old Amiga standard file requester as I know where all the buttons are, but the *MediaPoint* requester is my new favourite. The ability to pre-set Home directories, select multiple files (OK, ASL does this, but all programs accept it) and choose images from a reasonably quick thumbnail view make it the best.
- **Your favourite programs** can be stored in a menu for ease of access. Call up *DPaint* in seconds to retouch a display.
- **Things to come** – Activa have promised several truly tasty options in the very near future, including JPEG and MPEG support, and the ability to use PhotoCD.

YES, BUT WHAT USE IS IT?

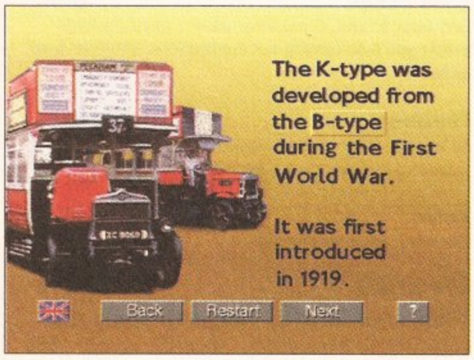
What can't you do? With the graphics support, wipes, sound playback, animation from disk and a

Amiga Multimedia in Action

Graeme Sandiford reports on the revolutionary use of Amigas in multimedia presentations at the London Transport Museum.

The London Transport Museum has just re-opened its doors, after a nine-month £4 million redevelopment. This re-development is intended to be the next step in the evolution of museums, and what's more, the Amiga has played a starring role in this step forward.

Museums have long been associated with dark and musty corridors, a place for only the most scholarly of individuals to visit. The London Transport Museum and the people involved, Mick Tinker, Technical Director of Index Information, and Rob Lansdown, Head of Communications and Display, hope to change this, making a visit to the museum a fun and informative experience for everyone. The vast amount of information contained in the museum should be made accessible, and learning about the past should truly be an 'experience', both visual and audible. The result is a brand new concept come true with a bit of help from computers – the *Hyper-Museum*.



This is an example of a typical screen you'll find at most of the Hyper-Museum's exhibits.

WHY THE AMIGA?

But why choose the Amiga as a platform for launching this new concept for a brighter future for many museums to come? One major reason is the price. The Amiga, and in particular CD32, can offer a great deal of multimedia power for a lot less than a similarly equipped PC or Mac. The price of a similarly specified single PC unit is about £2200, compared with the customised CD32 unit's price of £600. That's a substantial amount of money being saved, especially as the current network comprises 61 units, with even more to be added later. The network itself is pretty impressive.

At the moment there are two types of expansion units of the CD32x and CD32xg. The CD32x unit provides the standard Amiga ports (RS232 Serial, Parallel, RGB, floppy disk and stereo audio out). In addition it also adds the following ports – RS232 AuxSerial, Stereo audio in, 2 network ports, 4Mb SIMM memory expansion socket, control for triple stereo mixers, Watchdog timer, SCART connector and a connection for MPEG (FMV). In addition to these features CD32xg also has a high-quality internal RGB genlock and a BNC connector for composite video input.

The exhibits have their own AVIDS (Audio Visual Interactive Displays). These include a touch-screen monitor, which is connected via hidden cabling to its own console in another room. A console, linked in this manner, provide information about the exhibit it's placed in front of. This information can be in the form of text, audio or digitised images and diagrams. If the screen is left unmolested it will follow a set programme. However, if you touch the screen you are given control of the display. You can jump between different areas by *pressing* the buttons **next**, **previous** and so on, which are **hyper-linked**

full script-based language you can do anything short of writing a word processor or a C compiler.

Uses which immediately spring to mind are: writing demos, creating point of information systems, writing interactive training systems, writing information systems which can be updated via modem, building shop window displays using touch screens, recording lengthy cartoons with soundtracks to videotape, monitoring external devices and producing real-time status displays, synchronising several Amigas together via MIDI to make a video wall system, using the SMPTE/EBU support for film subtitling, using the scheduler system to trigger events at varied times of the day.

MEDIAPOINT VS. HELM VS. CANDO VS. SCALA

The similarities between *SCALA* and *MediaPoint* are rather obvious in that even the colour scheme is similar. The use of software modules to interface external hardware, the wipe effects, the scripting... how can you possibly choose between them?

The most comparable version of *SCALA* to *MediaPoint* is entitled *MM300*, and both retail at the rather hefty price of £329.99. In terms of features, there is very little between them. However in terms of actually using finished presentations in a stand-alone situation, the programs couldn't be more different.

SCALA requires a hardware dongle to be present for each copy of the program, including playback only routines. By comparison, *MediaPoint* has no such constraints placed on it. Both packages may cost the same, but *SCALA* could cost a lot more in the future as each additional dongle costs £100.

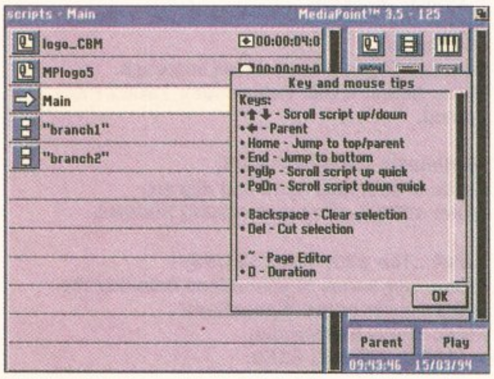
If there is a more philosophical distinction to be made between a program such as *MediaPoint* and a program such as *CanDo*, it's a subtle one. Both packages allow the integration of text, graphics, animations and sound. Both produce a finished item, that can be used interactively to achieve a goal or to be watched passively. Both suit the Amiga down to the ground.

To describe *MediaPoint* as a jumped up video titler is a little cruel, but it does help get the point across. Rather than set out to create a programming language from scratch, *MediaPoint* adds so many features to its internal scripting language that it is possible to write powerful programs with it.

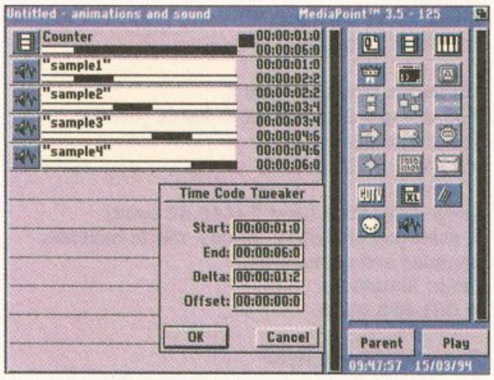
Packages such as *Helm* and *CanDo* started out specifically to be easy-to-use programming languages. During their development they simply grew dozens of graphics and animation features, and can now be used as authoring tools.

In the world of multimedia applications, both types of programs are heading towards a common wonderful ground from wildly different directions. What happens when they meet is anyone's guess, we can but dream yet – but you can rest assure it will be easy to program and have some really gob-smacking graphics!

continued on page 16



On-line help is useful, but to be honest almost unnecessary.



This is an example of a 'parallel script' in which events can all happen at once.

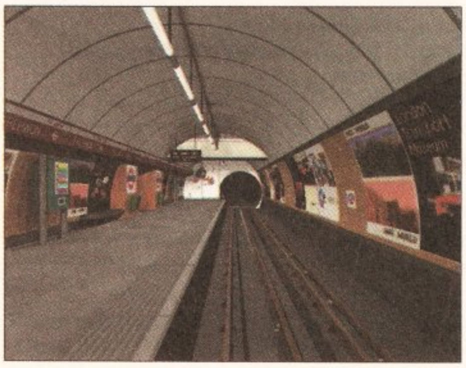
WHAT
Mediapoint – £329.99
WHO
Meridian Distribution
WHERE
East House, East Road
Industrial Estates, London
SW19 1AH ☎ 081 543 3500

to the next or previous page. You can also switch languages at any time by *pressing* the **flag** icon. The languages currently supported are French, German and Spanish, with Italian and Japanese to follow.

The CD32 consoles are also used to play different sound effects. They work particularly well when simulating the sounds of a moving train. It has been taken beyond the simple playback of sounds, there are random elements that can be programmed and occasional breaks. The samples are all crystal clear. At one point I was quite embarrassed when I was told that the chirping birds I was looking for were actually produced by a console. Some of the sounds actually use two consoles to produce quadraphonic effects. Two of the most popular exhibits are the simulators – these give visitors the opportunity to find out what it's like to drive a variety of underground trains. Behind these simulators are 4000/040s, each equipped with 18Mb of memory and 1Gigabyte hard drives. The animated screens were created from actual underground maps, so the routes you travel are real. They were created as 3D objects and rendered in *Real 3D 2*. The images took over 2 months render, but the results are very realistic.

THE EXPERIENCE

There are a number of advantages visiting a *Hyper-museum* over your common or garden museum. One of the best ones is that your explorations are *non-linear* – you can skip the parts you find boring and gain immediate access to further information on topics. The tube system map, for example, contains the different layouts of the London Underground since its construction. You can travel along the routes and through time. At any point you can call up information or photographs that relate to the construction of the lines or the different stations. While you are in this area you can move forward or backward through the station's history, and when you return the map is automatically updated so that all the new lines appear.



An animation frame from one of the Museum's Underground Train Simulators.

The combination of graphics, sounds, video footage and simulations really brings the past to life. The museum has a wonderful *hands-on* feel to it, and is definitely worth a visit even if you are not interested in public transportation. It's the future of museums – a more *interactive* future!

CHECKOUT MEDIAPOINT

Ease of Use **85%**
For a program this complicated, this is an excellent score. Basically it's a very well designed program.

Features **92%**
It plays the latest animation formats, it plays MIDI files and it connects to all the best high-end hardware, and if it doesn't work with your kit it can be made to. So many possibilities...

Speed **93%**
Speed, both of authoring a system and of playback, is great, although you do need a large system to make the most of this program as the minimum configuration is a hard drive and 2Mb of RAM. To even start to get the most out of it, you need a big harddrive, a 68030 or better, 6Mb of RAM and as much add-on video and sound hardware as you can afford.

Documentation **95%**
Easy to read, and full of tutorials with plenty of clear diagrams, appendices and a good index.

Value for Money **80%**
It does cost a lot of money, but think of it as an investment. If you sold one Point of Information system you could recoup the cost instantly.

Overall **94%**
Mediapoint delivers what AmigaVision promised, but never quite managed. If this doesn't push the Amiga to the forefront, nothing will.

Your Amiga CD-ROM catalogue

It's no good having one of the most powerful multimedia machines known to man, if you don't have any software to run on it. Fortunately, the Amiga is quite well catered for, thanks to Commodore's early promotion of the CDTV. Among the first parties to attempt to take advantage of this new media are the games publishers. But, as we know that most of you are serious-minded Amiga users who would like to make full use of this new technology, we've confined our list to serious software.

One drawback of the CDTV's early-success is that many titles are no longer being manufactured, much like the machine itself. Nevertheless, we've made every endeavour to find telephone numbers or addresses of manufacturers or suppliers.

The more observant among you will notice that Capri CD Distribution's name and number pops up quite often. This is because they claim to stock every Amiga CD title available, so you may find their number useful for obtaining future releases.

17Bit Collection (£39.99)
A 2-disk collection that contains the complete 17Bit PD library.
From: 17Bit Software
☎ (0924) 366982.

17Bit Continuation (£19.99)
Brings the 17Bit collection up to date.
From: 17Bit Software, ☎ (0924) 366982.

Advanced Military Systems (£29.99)
Pictures and information on 100 of the World's most deadly engines of destruction.
From: Capri CD Distribution, ☎ (0628) 891022.

American Vista Atlas (£29.99)
Multimedia Atlas of America.
From: Capri CD Distribution,
☎ (0628) 891022.

Aminet CDROM (£19.99)
The entire Aminet area of the Internet on CDROM!
From: 17Bit Software,
☎ (0924) 366982.

Animals in Motion (£29.99)
A collection of images made by Edweard Muybridge (useful for creating realistic animations).
From: Capri CD Distribution,
☎ (0628) 891022.

CDPD II and III (£19.99 each)
A Collection of recent PD in an uncompressed format.
From: 17Bit Software,
☎ (0924) 366982.

CD-Remix Versions I and II
You can use this product to remix your CD.
From: Microdeal,
☎ (0726) 68020.

Demo Collection I and II (£19.99 each)
A selection of images, demos, music modules, samples and animations.
From: Almathera,
☎ 081-683 6418.

Emergency Languages
Emergency crash-courses in Danish, French, German, Italian, Japanese and Spanish.
From: On-Line Entertainment, 642A Lea Bridge Road, Leyton, London.

Fractal Universe (£24.99)
It's like a trip into another universe man, a fractal universe.
From: Capri CD Distribution,
☎ (0628) 891022.

Fred Fish and FreshFish Collections
The complete Fred Fish Public Domain collection on CD-ROM.
From: Amiga library Services, 610 N. Alma School Rd., Chandler, AZ 85224-3687, USA.

Illustrated Shakespeare (£29.99)
The complete work of the Great Bard on CD-ROM, with a useful search facility.
From: Capri CD Distribution,
☎ (0628) 891022.

Illustrated Sherlock Holmes (£29.99)
All of Sherlock Holmes' adventures, complete with colour illustrations and atmospheric music.
From: Capri CD Distribution,
☎ (0628) 891022.

LTV English
Teaches English as a foreign language.
From: Jeriko, 5 Bld. Poissoniere, 75002 Paris, France.

Multimedia Toolkit (£19.99)
Loads of samples, fonts and clip art.
From: 17Bit Software, ☎ (0924) 366982.

NASA...The 25th Year ($24.95)
Interactive series of animations detailing the major events of the 'SpaceRace'.
From: Troika Multimedia,
☎ (0101) 703 841 5160.

Pandora's CD (£4.99)
A collection of clip art, scanned images and sound effects.
From: Capri CD Distribution,
☎ (0628) 891022.

The Connoisseur Fine Art Collection
Selection of pictures covering nine periods of art

VISIONS OF THE FUTURE

You might be thinking that multimedia seem to be something for big corporations, or home users with more money than sense. That's just not true – very soon we'll all be using it.

Pretty soon you'll be finding that books of note are not just being brought out on paper, they'll be launched in conjunction with their CD-ROM counterparts. You may well find yourself reading your favourite magazines from a CD-ROM. You'll almost certainly be listening to music, watching films and playing computer games with their aid.

But the biggest impact of multimedia is going to be in education. I know, I know, education can sound so boring. But think about it – learning is fun and one of the most rewarding experiences there is when you're learning something you want to know about (that's why you enjoy *Amiga Shopper* so much!). Interactive technology means that you can pursue the aspects of a subject that particularly interest you; and the huge storage capacities of CD-ROMs means that there certainly is going to be something of interest there. Couple all this with extensive search and cross-indexing facilities, and you've got the most valuable and useful repository of information mankind has ever seen. The Library of Alexandria – pah! That's nothing...

Things are looking pretty damned exciting for the more immediate future too. If you want to discover what's about to happen in Amiga multimedia, a good place to start (aside from this esteemed tome, that is) is at one of Premier Vision's seminars. And that's what we did.

The first seminar was held at King's College, London on 14th March. Places were £116 each, so it's aimed very much at the serious user. David Pleasance kicked off the proceedings with information on the *Amiga Centres Of Excellence* (see panel on page 11) and confirmation of the forthcoming Super Amiga. It is, he told us, going to be based around a RISC chip, using AAA graphics technology and including hardware dedicated to 3D

AMIGA AND THE STILL IMAGE – PHOTO CD

If you use, or would like to use, your Amiga for high-end DTP or producing quality graphics you'll eventuallly need some way of caputuring images from the 'real world'. High-quality digitised images can improve a document's appearance, liven up multimedia projects and provide added realism to raytraced images and animations. But, most of the methods for capturing these images are costly. You could purchase your own colour scanner, but, that would set you back between £400 and £1000. Alternatively, you could invest in a digitiser and camcorder – an expensive option. If quality is your main priority, you might even consider getting a professional to scan your pictures – extremely expensive! One of the more economical ways of getting high–quality images is Photo CD. Yes we know Photo CD players are expensive, but, if you have an Amiga with a multi-session capable CD-ROM drive, you don't need one! The only other hardware you will need is a camera that uses 35mm film. The reason you'll need a multi-session drive is that Photo CDs differ from ordinary CD-ROM, as you can write to the disc several times. This means you don't have to try to take enough pictures to fill a whole CD-ROM in one go. The quality of the images are stunning. However, you will need an AGA-equipped Amiga or a 24-bit graphic display to view the images at photographic quality. To access the files you'll also need an appropriate filing system and file converter, such as the *Asim* filesystem utility and Gunnar Niclase's Public Domain *ImageFX Photo CD* loader module.

with musical accompaniment.
From: Lascelles Productions (New Zealand)

The First AMUC CD
A collection of PD with over 100 3D objects.
AMUC, P.O. Box 34230 #19-1200 37th St, Calgary, Alberta, t3C 3W2, Canada.

The American Heritage Illustrated Encyclopaedic Dictionary (£29.99)
An interactive dictionary with 180,000 entries and 3,000 colour illustrations.
From: Capri CD Distribution, ☎ (0628) 891022.

The Family Circus Video Workshop
Use your CDTV to liven-up your home videos.
From: Context Systems, ☎ (0101) 215 675 5000.

The Hutchinson Encyclopedia (£9.99)
The first multimedia encyclopedia for the Amiga. Bundled with the CDTV.
From: Capri CD Distribution, ☎ (0628) 891022.

The Illustrated Holy Bible (£29.99)
The multimedia version of the Good Book.
From: Capri CD Distribution, ☎ (0628) 891022.

The New Basics Electronic Cookbook (£19.99)
Contains 1,800 recipes, photos and a voice-over.
From: Capri CD Distribution, ☎ (0628) 891022.

Time table of (Business, politics and Media), (Science and Innovation) and (Arts and Entertainment) (£24.99 each)
Three separately-available CD-ROMs that cover major developments in these fields.
From: Capri CD Distribution, ☎ (0628) 891022.

Women in Motion (£19.99)
Based on the same studies of the movement of animals.
From: Capri CD Distribution, ☎ (0628) 891022.

World Vista Atlas (£44.99)
The whole World on CD-ROM!
From: Capri CD Distribution, ☎ (0628) 891022.

EDUCATIONAL TITLES

A Bun For Barney (£19.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Alistair in Outer Space
From: Altered Images, ☎ (0234) 340722.

Asterix French for Engish (£34.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Asterix English for French (£34.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Barney Bear Goes Camping (£29.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Barney Bear Goes To School (£19.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Cinderella (£19.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Fruits and Vegetables (£14.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Fun School (£14.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Garden Plants (£14.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Heather Hits Her 1st Home Run (£34.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Indoor Plants (£14.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Japan World (£49.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Moving Gives Me Stomach Ache (£19.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Mud Puddle (£24.99)
From: Capri CD Distribution, ☎ (0628) 891022.

My Paint (£19.99)
From: Capri CD Distribution, ☎ (0628) 891022.

North Polar Expedition (£49.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Paperbag Princess (£24.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Scary Poems For Rotten Kids (£39.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Tale Of Benjamin Bunny (£39.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Tale Of Peter Rabbit (£19.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Thomas Snowsuit (£19.99)
From: Capri CD Distribution, ☎ (0628) 891022.

Trees And Shrubs (£14.99)
From: Capri CD Distribution, ☎ (0628) 891022.

rendering and texture mapping. It will be Windows NT and MS-DOS compatible and will be, we were assured, compatible with existing Amiga software. All of this will run several times faster than a Pentium PC (the current top of the range IBM machine) and be competitively priced.

Other key products on show were:

● **The Personal Animation Controller**. Demonstrated by Joe Benzing of Commodore, this system, comprising of two separate cards. The first, the AD-3000, will digitise and compress video in real-time, at broadcast quality, and save the whole lot to hard disk. The AD-3000 will cost around £900. £1600 will buy you PAR, the playback component of the system. Again, we're talking about broadcast quality video, here. The system uses hard drives mounted directly on to the cards – up to two drives are supported – to keep data transfer to a maximum. Commodore recommend heartily the use of the Micropolis 1.7Gb drive, which will store a maximum of 15 minutes of video.

● **Bars & Pipes**, the popular music sequencer. An upgrade is planned for release by the time you read this. The main change is a much-improved scoring system, for which Blue Ribbon have drawn on the talents of Evelyn Glennie, the classical music percussionist and Amiga proponent.

● **Peggy Plus**, a £400 MPGEG decoder with genlock that will play full motion video on any machine equipped with a drive (CD-ROM or hard drive) that has a transfer rate of 150K per second or more. Look no longer at CD32 owners in envy – hook up a CD-ROM drive to your machine and buy a copy of *Peggy Plus*, and you too can watch *Top Gun*! An optional software component is also available that will perform MPEG encoding.

● **The Video Cruncher**. For around £1,000 this board will grab and compress (JPEG, to be precise) video in real time at S-VHS quality.

● **LightRave**. Causing quite a stir at the moment, this is a dongle that can be used to fool your Amiga into thinking it has a Video Toaster attached. Why? So it can run *LightWave*, generally accepted to be the best 3D rendering software. Although the Toaster is, *LightWave* itself is not NTSC specific – it can render in resolutions high enough even for 35mm film work. It was this software that was used to create the submarine in *SeaQuest DSV*. Now, for only £799, you can have it and the *LightRave* dongle.

All of the above will be available from an *Amiga Centre Of Excellence* near you. Watch out for further news in forthcoming issues.

So, now you know what multimedia is all about. You know how well advanced the Amiga already is in the field, and how important the whole multimedia comotion is going to become. What are you waiting for? AS

BLITS & BOBS

The PC computers seen in top TV programs such as Cracker don't actually create their own displays. Instead, there's an Amiga hidden away in the backround generating a display synchronised to the cameras, ensuring that no screen roll is visible.

MULTIMEDIA CONTACTS

Premier Vision ☎ 071 274 4407
Ramiga International ☎ 0690 770304
First Computer Centre ☎ 0532 319444
Gasteiner ☎ 081 345 6000
Commodore ☎ 0628 770088
Silica Systems ☎ 081 309 1111

WIN A £1,000 DREAM MULTIMEDIA SYSTEM

We've got two systems – each with CD-ROM drive, SCSI interface, 270Mb hard disk, 4Mb of RAM and Scala MM300 – up for grabs.

Our thanks must go out this month to The First Computer Centre, Software Demon and Scala UK, who, between them, have enabled us to make this the biggest and best competition *Amiga Shopper* has ever run.

Just look at the glorious prizes we have on offer! Get stuck into the questions on page 21 (you'll find all the solutions by judicious reading of this issue) and get your answers rushed in to us. Please make sure you clearly specify which Amiga you own, as the exact specification of your prize will vary accordingly. Go on, what are you waiting for, don't you fancy a grand's worth of top Amiga kit?

WIN!

The CD-ROM Drive

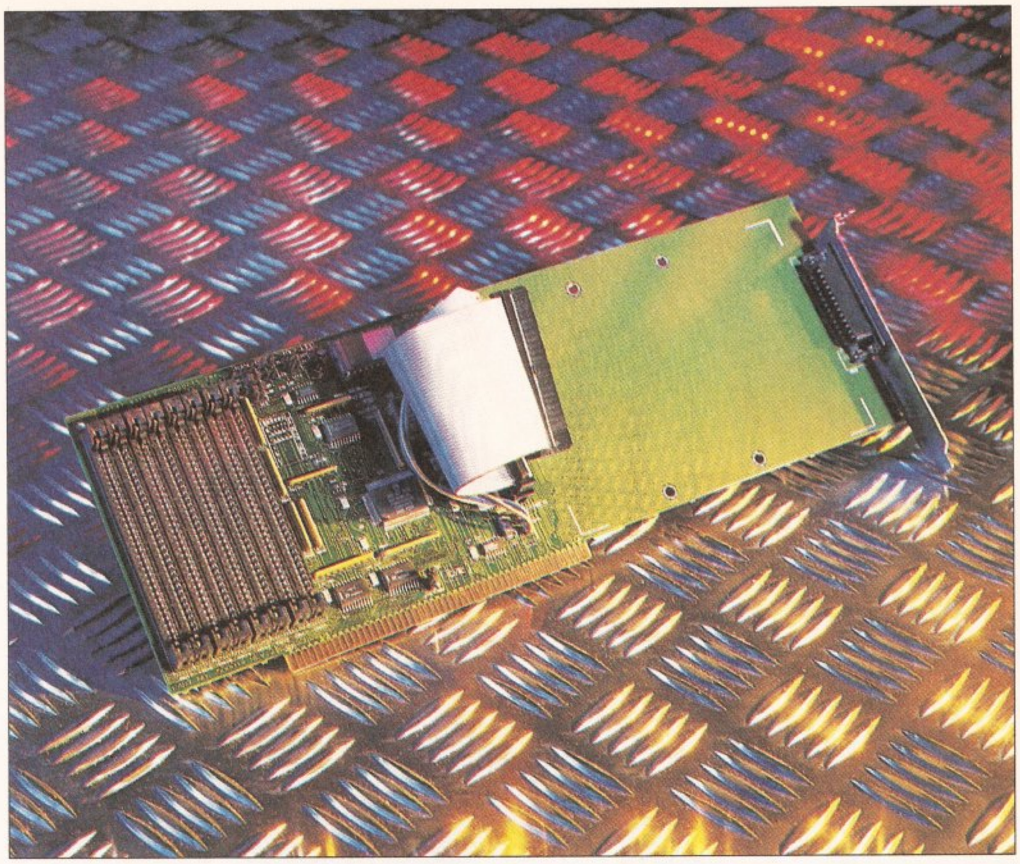
The key component of your multimedia set-up is a CD-ROM drive. The First Computer Centre, who are rapidly developing a reputation as one of the leading dealers of CD-ROM drives for the Amiga, have very kindly donated two Toshiba XM4101 models – each worth £219.99 – for us to give away.

The drive in question is a dual-speed model, capable of both 150K and 300K per second transfer rates, and with a 300ms access time.

It's also XA (eXtended Architecture) compatible, which means it can perform clever tricks like transferring CD audio across the SCSI bus.



The Toshiba XM4101 CD-ROM drive, from The First Computer Centre. Lovely, isn't it?



GVP's renowned HC+8 SCSI interface card, plus a whacking 4Mb of RAM – all from Software Demon.

RAM & SCSI INTERFACE

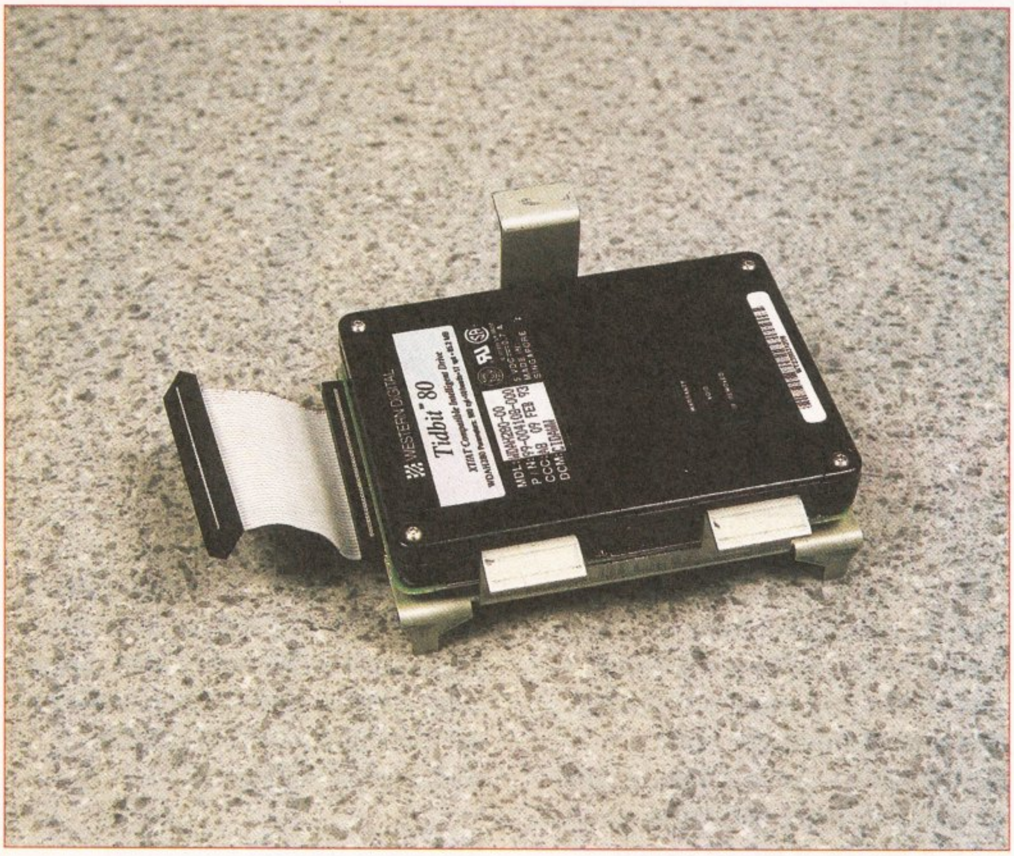
You won't get far with your CD-ROM drive without a decent SCSI interface. Fortunately, Software Demon – one of the top names in Amiga storage technology and installation – have given us two of the very best available – GVP's Series II HC+8 (each worth £130), winner of the *Amiga Shopper* Best Buy award.

Not only will the card enable you to hook up your CD-ROM drive; with it you'll also be able to connect a SCSI hard disk (as if the 270Mb IDE model over the page isn't sufficient!) and, more importantly, add more memory – an enormous help in running multimedia software.

Software Demon have also supplied us with two Samsung 4Mb 50ns SIMMs (that's £134 worth apiece) as prizes, so you know that all your storage requirements will be dealt with.

WIN!

WIN!



Short of storage space? A 270Mb IDE hard drive from Software Demon should certainly keep you going for the forseeable future.

A 270Mb hard drive

Software Demon's generosity doesn't end there. Oh no. This new-fangled CD-ROM stuff is all very well, but where would you be without some good old-fashioned re-writable storage, eh? That's where these two vastly garagantuan IDE hard drives come in, each worth £199. You'll never want for disk space again.

The two models up for grabs here are 2.5" single-platter Western Digital models. They're ideal for A600, A1200 and A4000 owners.

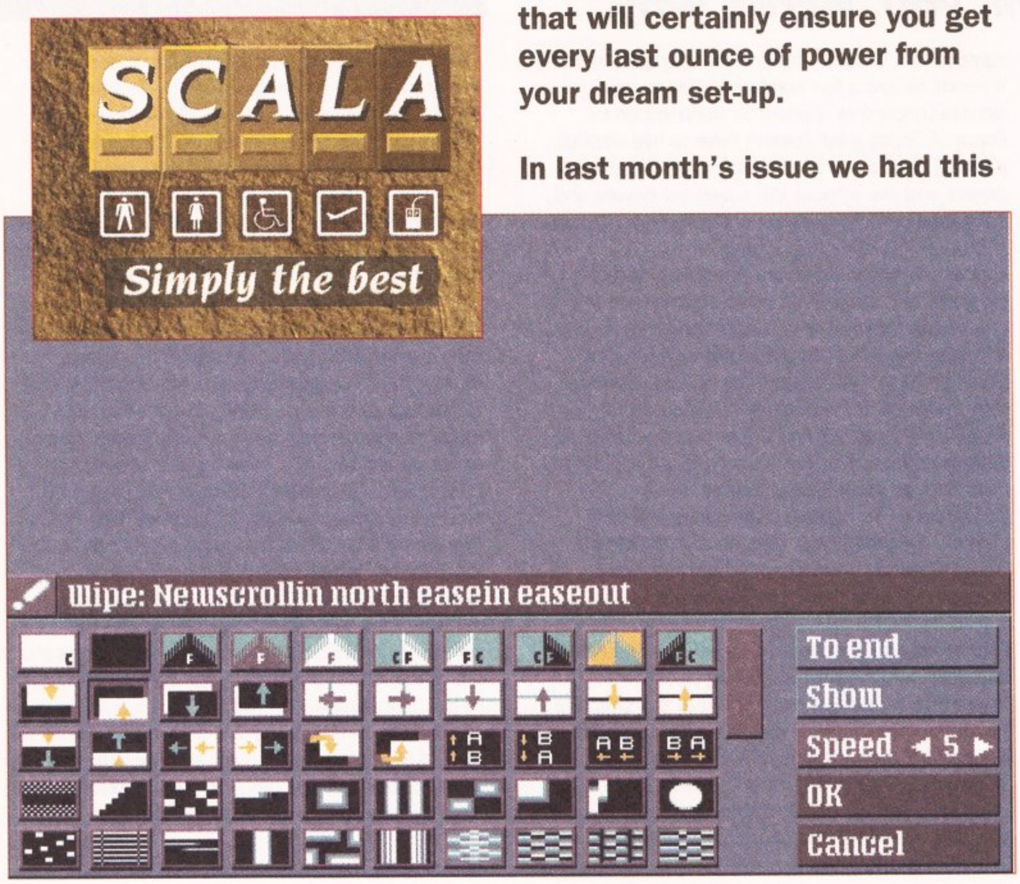
Don't worry if you own a different machine – just specify what it is on your entry, and we'll tailor your prize accordingly. Software Demon are confident that they can supply high quality hard drives for just about every model of Amiga there is.

Scala MM300

That's all the hardware dealt with, but everyone knows hardware is as nothing without the software to drive it. Scala UK have given us two copies of *Scala MM300* – a £329 program that will certainly ensure you get every last ounce of power from your dream set-up.

In last month's issue we had this to say about the multimedia authoring package: "There's no doubt that *Scala* is the king of the presentation programs, and it will take something very special to usurp its crown. Long live the King!"

Sounds pretty good, eh? Read on to find out how you can get your hands on it...



The brand new Scala MM300 has been acclaimed by our good selves as king of the presentation packages. How'd you like to get it for free?

Multimedia Madness Compo

Have a look at the four questions to the right, write your answers on the back of a postcard or sealed envelope – don't forget to include your name and address and the model of Amiga you own – and send them to:
Multimedia Madness
Amiga Shopper
Future Publishing
30 Monmouth Street
Bath BA1 2DL
The closing date is 13 May '94. One entry per household.

1) What is the name of the technical director of Index Information, the people behind the Amiga installation at the London Transport Museum?
2) Roughly how many words of text would you expect to fit on to a single CD-ROM?
3) What colour is the book that defines the Video CD standard, as agreed by major multimedia players?
4) On what saint's day was the first Centre of Excellence opened?

Wordworth vs Final Writer

The long-awaited Wordworth 3 surprised Jeff Walker as much as it will you. Here's why...



Have Digita blown it with their Wordworth 3?

Product: Wordworth 3
Price: £149.99
Supplier: Digita International Ltd.

Very few Amiga applications have stirred up the interest and anticipation that *Wordworth 3* has. The publicity bandwagon has been rolling for six months, and if there is an Amiga owner out there who hasn't heard of *Wordworth 3*, then he or she is either stuck on level 39 or leading a very sheltered life. The *Wordworth 3* hype completely overshadowed the release of *Final Writer* from Softwood, which we reviewed in issue 34 and was given a 9/10 overall rating. We told you that *Final Writer* was certainly the nearest thing we had on the Amiga to the mighty *Word for Windows*, and that greater things were anticipated from *Wordworth 3*, of which, at that time, we had seen only an early, very unfinished version. The *Wordworth 3* we previewed in issue 34 was what Digita told us *Wordworth 3* was going to do. The *Wordworth 3* I am reviewing here isn't a *review copy*. The importance of this fact will become self-evident.

MORE THAN JUST WORDS

Word processing these days is not only about handling text, it is also about handling graphics. Text features boil down to font support, text editing facilities, and any extras that make text editing easier or more powerful. Graphics features need to include support for importing and placing pictures, facilities for drawing elements like lines, boxes and borders, plus any extra design aids that help you produce professional looking "desktop published" documents without having to employ or study to become a professional page designer. Let's start with the basics.

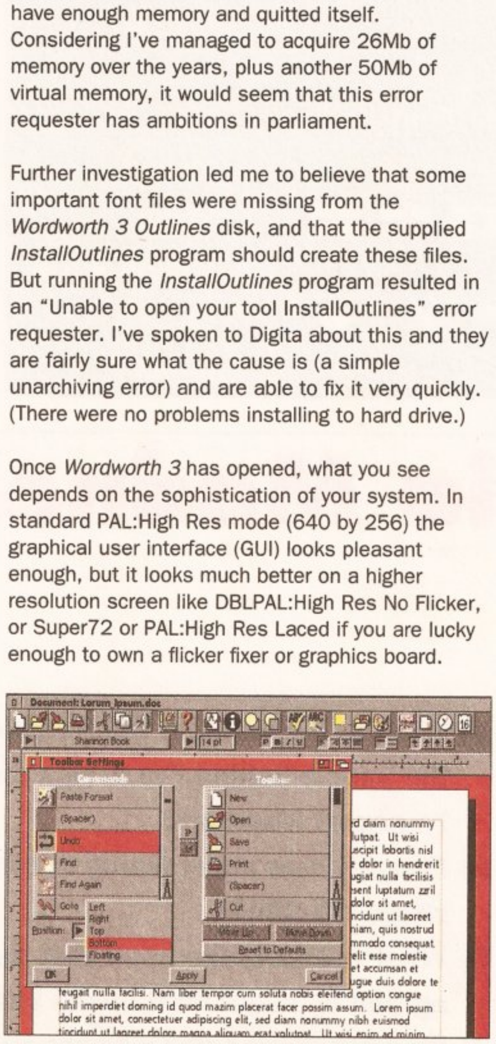
Wordworth 3 comes on nine disks. Four of these are the Wordworth install disks, four more are the strangely named Reference Library, which is actually 50 Agfa Compugraphic fonts, and one is the *Digita Print Manager* program, which is a special version of *Studio Printer Software* that works only with *Wordworth*.

Digita are very proud of the fact that, unlike *Final Writer*, *Wordworth 3* does not require a hard drive. It does, however, require at least two floppy drives, 2Mb of free memory, and Workbench 2 or better. After spending five minutes installing *Wordworth 3* on to my hard drive, it was time to investigate the *Install To Floppy* option. To install *Wordworth* itself took 40 minutes and 20 disk swaps, and I ended up with seven program disks. The 50 fonts in the Reference Library install on to another six disks, so my complete floppy-based *Wordworth 3* system comprised 13 disks. *Digita Print Manager*, because it needs to add a fair number of files to your system (*boot*) disk, cannot be installed on to floppy. A floppy user doesn't have to live without printing, but has to use the standard Workbench drivers and live without the advanced drivers and enhanced printing features of *Digita Print Manager*.

Four of the seven disks are required just to get the program up and running, three of which are in and out of your external drive two or three times each. As I say, this is just to get *Wordworth* to open – which I couldn't do. Something had gone wrong with the floppy installation which meant that *Wordworth* could not find a font that it wanted. It politely told me this, then rudely said that I did not have enough memory and quitted itself. Considering I've managed to acquire 26Mb of memory over the years, plus another 50Mb of virtual memory, it would seem that this error requester has ambitions in parliament.

Further investigation led me to believe that some important font files were missing from the *Wordworth 3 Outlines* disk, and that the supplied *InstallOutlines* program should create these files. But running the *InstallOutlines* program resulted in an "Unable to open your tool InstallOutlines" error requester. I've spoken to Digita about this and they are fairly sure what the cause is (a simple unarchiving error) and are able to fix it very quickly. (There were no problems installing to hard drive.)

Once *Wordworth 3* has opened, what you see depends on the sophistication of your system. In standard PAL:High Res mode (640 by 256) the graphical user interface (GUI) looks pleasant enough, but it looks much better on a higher resolution screen like DBLPAL:High Res No Flicker, or Super72 or PAL:High Res Laced if you are lucky enough to own a flicker fixer or graphics board.



The button strip means that any or all of 110 preset functions are just one mouse click away. It can be placed anywhere around the edge.

Fonts will look their best only when screen pixels are square – on a standard 640 by 256 screen pixels are elongated, so fonts will appear on the screen twice as tall as they print. Of course the same is true of just about any Amiga program.

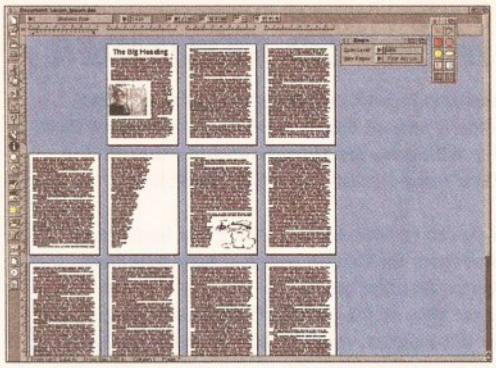
Wordworth 3, like *Final Writer*, opens in any screen mode supported by Amiga, including Workbench itself, in any number of colours from 2 to 256.

Both programs sport toolbars, or button strips as they more usually called, and both programs enable you to customise these button strips. *Final Writer* has 176 preset icons, any of which can be made to operate any menu command, any ARexx script, or any text clip, or any string command (single ARexx command). *Wordworth 3* has 110 preset icons that operate 110 preset functions. *Wordworth*'s button strip can be positioned at the top, bottom, left or right of the screen, or in a floating (draggable) window should you require more buttons than will fit down or across the screen. *Final Writer's* button strip runs across the top of the screen, and the latest version (Release 2) has a floating option putting all the buttons in a window that is draggable and also resizable. Up to eight button strips can be set in *Final Writer*, while *Wordworth 3* has just one, although different settings files can be saved and loaded.

Customising the button strips in either program is very easy. *Wordworth 3* requires you click on the button you want to add, click where you want to insert it, then click on a **move** icon. *Final Writer* simply drags an icon from the list of available icons into the list for the current button strip. As well as the button strip, more word processing functions are provided on icons along the top of the screen in a tool strip. These are tools to change fonts and paragraph styles, although *Final Writer's* also contains some drawing tools (which *Wordworth* can put in its button strip). *Wordworth's* tool strip cannot be customised, and it is fixed at the top of the screen, but you may hide and reveal it. The tool strip in *Final Writer* is also fixed along the top of the screen and in the functions it contains, but in Release 2 it can also float in its own window.

TEXT HANDLING

As far as text editing features are concerned, both *Wordworth 3* and *Final Writer* cope very well indeed. Both enable you to drag the cursor to highlight a block of text, and both enable you to do the same thing by holding down the **Shift** key and using the **arrow** keys. Both enable you to select a word by double clicking on it, but in *Wordworth 3* you can also select a line of text by triple clicking. *Final Writer* cannot do this, but it has the arguably more



Zooming out from a large document and switching Four Across mode on will enable you to quickly position graphics and make rough design changes while keeping an overview of the document.

useful feature of being able to Shift-click to mark any block of text – you double click the word at the start of the block, move the pointer to the end of the block, then click again holding the **Shift** key and everything in between gets selected. To mark three pages of text in *Wordworth 3* you would have to drag a block and wait for the screen to scroll down three pages – tedious to say the least.

Both programs support the standard Amiga keyboard short-cuts for **cut**, **copy** and **paste**, but while *Final Writer* uses the standard Amiga clipboard device, *Wordworth 3* maintains its own private clipboard and therefore cannot share cut or copied data with other programs.

Possibly the most important text feature of any word processor is how it handles fonts. *Wordworth 3* supports Agfa Compugraphic Intellifonts of both the Workbench and Gold Disk kind, PostScript Type 1 fonts, and TrueType fonts, all of which are scalable fonts. If you haven't got hardware or memory to handle scalable outline fonts, standard Amiga bitmapped fonts can also be used, as can a number of fonts built into printers. But the flexibility of scalable fonts is what most users want, and *Wordworth 3* comes with 50-odd Agfa Intellifonts, which actually comprises 19 different typefaces, the rest being different styles of those typefaces, plus a couple of symbols fonts. *Final Writer* also supports Agfa Intellifont and PostScript Type 1, and it counters *Wordworth's* TrueType support by supporting NimbusQ. For the record, *Final Writer* comes with 125 NimbusQ fonts which are actually 26 different typefaces in several styles, plus 21 decorative typefaces. Both programs can load fonts from anywhere on your hard disk, or from any floppy – or in other words, neither requires a special fonts directory just for its own use.

How do they handle the fonts? *Wordworth 3* has a simple font requester in which you choose the font, its size, colour, background colour and style, its tracking, and if it is an Agfa Intellifont you may also switch kerning on and off. A useful preview of the font is displayed in the requester, and when you hit OK the options you have selected are applied to whatever text is highlighted at the time.

If you do a lot of document formatting, you require text styles, or style sheets as they are also called. Style sheets enable you to give a custom name to a style of text and then specify all the attributes for that style on one *sheet* (or *requester*). Styles for headings and subheadings, body text and captions, labels and callouts, listings and tables... Two important aspects of style sheets are that you cannot forget what style should be applied to a particular piece of text, and it enables you to apply many style attributes at a single stroke, and to globally adjust those attributes.

Final Writer has really superb support for style sheets, better even than dedicated desktop publishers like *ProPage 4* and *PageStream 2*. Styles can be assigned to function keys for ultra quick application, and Release 2 of *Final Writer* supports a floating style palette containing a list of all your styles, making selection ultra easy. The nearest *Wordworth 3* gets to style sheets is a **find and replace** feature that can replace one font in one size with another font in another size. When asked why, Digita said the feature was not requested by *Wordworth 2* users!

FORMATTING

Like all good word processors, both *Final Writer* and *Wordworth 3* are paragraph-based, which means that changes made to the ruler, indents, tabs, margins, etc, are applied to the current paragraph. This system is extended so that highlighted blocks of text, anything from one paragraph to the whole document, can also be formatted either by the ruler line or by selecting options in a paragraph format requester.

Wordworth 3 contains a nasty little bug that reveals itself only when more than one paragraph is highlighted and you select the **Format Paragraph** requester. Every gadget has the word **Mixed** next to it, indicating that there are many paragraphs selected and there could very well be many different formats involved. It seems like a sensible feature. But if you select OK from this requester, suddenly *all* your text disappears from the screen. As it happens it is still there, and the previously highlighted paragraphs are still highlighted, so all you have to do is immediately go back to the **Format Paragraph** requester and enter a proper line spacing measurement. But how on earth did that one get past the testers?

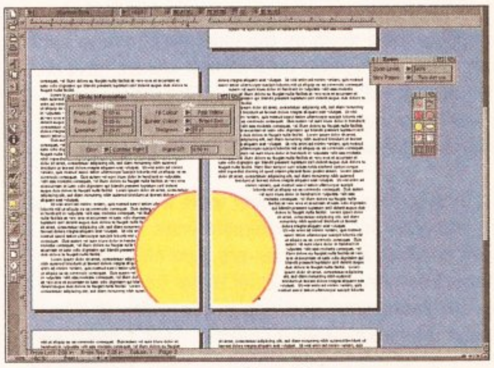
It is even-stevens between the two with paragraph formatting options, but *Final Writer* has one feature that makes *Wordworth 3* look ordinary — **Sections**. When you are producing a large document it almost certainly will have many sections. In effect, sections are like separate documents. Each can have its own document format settings, different headers and footers, different page numbering, different margins, different number of columns, and so on. Although the entire document is in memory, you work on just one section at a time, the others being a quick menu-pick away, and you can create as many sections as you like, inserting them anywhere you like in the document. To do something similar in *Wordworth 3* you would have to save each section as a separate document.

Captioning tables, diagrams and illustrations has always been a problem in Amiga word processors. Really these need to be separate elements so that you can position them freely. Both *Wordworth 3* and *Final Writer* have implemented something called text boxes, although each works differently. *Final Writer's* text boxes can contain up to 37 characters in one line of text. This gets placed on the page in the selected font and style, and means you can move it, resize and rotate it any way you want. Terrific for headings and special effects. *Wordworth 3's* text boxes you can have any size with as much text as you like, and the contents always remain text and are freely editable and reformatable at any time. *Wordworth 3's* greatest selling point is its **TextEffects** feature. This is a similar concept to *Final Writer's* text box, only much more powerful. Text can be resized by dragging the handles of the box, and features in the **TextEffects** requester enable you to rotate it, add shadows, and apply any number of special effects by combining the few that are provided.

GRAPHICS

And so we come to graphics. *Wordworth 3* will import any 2-256 colour IFF-ILBM, plus HAM and HAM-8, but not IFF24 (24-bit *true colour* graphics). It also supports BMP, PCX, TIFF, IMG and GIF bitmapped graphics, but once again we have a new program that doesn't support DataTypes, one of the most useful features of Workbench 3. *Final Writer* also makes no use of DataTypes, and its bitmapped graphics support is limited to just IFF-ILBM, although that does include IFF24.

Vector or structured graphics are also supported by both programs. *Final Writer* supports Encapsulated PostScript (EPS), which is still the standard vector graphics format for desktop publishing, and it can display these or a bitmapped preview (TIFF header) on the screen. Despite the fact that they are PostScript graphics, they may be output to non-PostScript printers. Soft-Logik's *Art Expression*, Gold Disk's *ProDraw* and Stylus's *ProVector* can all produce graphics that can be imported, displayed,



This circle has been positioned over a spread using Wordworth 3's Double Page Spread feature.

manipulated and printed by *Final Writer*.

Wordworth does not support EPS, nor any other vector graphics format that any Amiga program can produce. *Wordworth* supports an Atari ST format called GEM and a PC format called CMG (Freelance Metafile format). Luckily *Wordworth 3* is a modular program, so it is perfectly feasible for Digita to add support for EPS or any other graphics format, bitmapped or vector, in the future.

Both programs will display graphics in as many colours as you have specified for the program's screen, and both will print the original version of the graphic rather than the screen version. Both programs slow down horribly in 256 colours, even on a 4000/040, but there's no real need to work in 256 colours so this is not much of a problem.

Final Writer enables you to put a border around an imported graphic, in any colour, in a range of weights from a hairline to 12 points (1/6th of an inch). *Wordworth 3* cannot do this. You would have to draw a transparent box exactly over the top of the graphic. Both enable you to position and size graphics by screen coordinates and actual

NOT SO FAST, MATEY – THERE'S SO VERY MUCH MORE TO CONSIDER

If all you need is a simple word processor, check out the PD scene. *TextPlus* on Fish Disk 846 is the most fully-featured PD word processor, It even handles *TeX* typesetting commands, *TeX* being a PD typesetting package (for 68020 processors or better) that is on Fish Disks 611-616. With *TextPlus* and *TeX* it is possible to easily create documents that even *Final Writer* and *Wordworth* would have trouble with.

In the low-end commercial word processor market, *Pen Pal* is your only real choice and a pleasant enough word processor to use. But it lacks power and it works only with bitmapped fonts (jagged text output), or with a printer's default built-in font (mixing graphics with text is difficult).

In the middle price range we have only one real contender – *Final Copy II*. There's *Protext* of course, but this does not support outline fonts or on-screen graphics, the two features that are most in demand. *Final Copy II*, like *Pen Pal*, is underpowered but it does contain all the basic word processing features, good graphics support, and it produces superb printouts because it uses outline fonts. Although *Final Copy II* cannot hold a candle to the likes of *Word For Windows*, the average Amiga user will find *Final Copy II* good enough for most jobs.

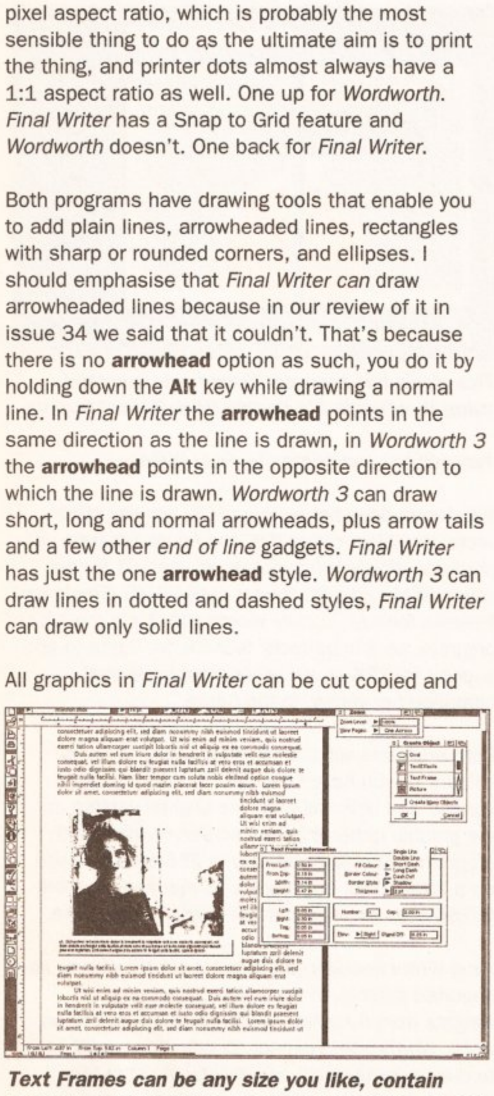
If you're serious about getting the best word processor for the job at hand, then you need *Amiga Shopper* issue 39 – on sale Tuesday 7th June. Why so far off? Well, because it is going to be the biggest, most ambitious comparison of Amiga word processors ever seen. By then, the updated version of *Wordworth 3* should be available. We'll see how this alters the scores...

measurements, both enable you to resize a graphic while preserving its aspect ratio. *Final Writer* has a neat feature that will halve a graphic's size if you double click on it while holding down the **Shift** key.

Alas, *Final Writer*, being of US origin, assumes an NTSC pixel aspect ratio for bitmapped graphics, which means that graphics created on PAL systems will always import a little elongated. Correcting the aspect ratio needs to be done by hand, which means reducing the height of the graphic to about 85 per cent of the height at which it imported before sizing the graphic with the mouse while holding down the **Shift** (keep aspect ratio) key. *Wordworth 3* imports bitmapped graphics at a 1:1 pixel aspect ratio, which is probably the most sensible thing to do as the ultimate aim is to print the thing, and printer dots almost always have a 1:1 aspect ratio as well. One up for *Wordworth*. *Final Writer* has a Snap to Grid feature and *Wordworth* doesn't. One back for *Final Writer*.

Both programs have drawing tools that enable you to add plain lines, arrowheaded lines, rectangles with sharp or rounded corners, and ellipses. I should emphasise that *Final Writer can* draw arrowheaded lines because in our review of it in issue 34 we said that it couldn't. That's because there is no **arrowhead** option as such, you do it by holding down the **Alt** key while drawing a normal line. In *Final Writer* the **arrowhead** points in the same direction as the line is drawn, in *Wordworth 3* the **arrowhead** points in the opposite direction to which the line is drawn. *Wordworth 3* can draw short, long and normal arrowheads, plus arrow tails and a few other *end of line* gadgets. *Final Writer* has just the one **arrowhead** style. *Wordworth 3* can draw lines in dotted and dashed styles, *Final Writer* can draw only solid lines.

All graphics in *Final Writer* can be cut copied and



Text Frames can be any size you like, contain whatever text you like, in any font you like, in any colour you like...a bit like mini documents.

pasted to and from the standard Amiga clipboard, meaning you can copy (Amiga-C) a brush to the clipboard in, say, *Deluxe Paint* or *Personal Paint*, and then paste it (Amiga-V) into your *Final Writer* document without having to save or load anything. *Wordworth* can duplicate only vector graphics and anything drawn within *Wordworth* itself, but as with copying text, it uses its own private clipboard. While testing *Wordworth 3*, on several occasions while mucking about with vector graphics, a picture frame on the page that contained a bitmapped graphic suddenly and inexplicably emptied itself, forcing me to import the graphic again.

Bitmaps in *Wordworth* cannot be moved with the mouse from one page to another, as all elements can be in *Final Writer*, although vector graphics and elements drawn in *Wordworth* can be moved from page to page. *Wordworth* will enable you to work on up to four pages side by side, as opposed to one under the other, which is the only way *Final Writer* presents them to you. *Wordworth* also has a double page spread feature that enables you to position an element over the central gutter of two facing pages; in *Final Writer* you would have to fudge this by having a left-half and right-half of the element positioned appropriately on the two pages.

Both programs are able to crop graphics, and both can either save imported graphics within a document or save just the link (*path*) to the graphics file, which makes for smaller document file sizes. *Wordworth 3* can save a *hot* link to an imported graphic, which means that if you alter the graphic and re-save it (with another program), *Wordworth 3* will automatically re-import it in realtime rather than when you next open the document. Naturally this works only with bitmaps as there are no Amiga structured drawing programs that can import the vector formats supported by *Wordworth*. As it happens, I couldn't even get the hot link to work with bitmaps.

Both programs can flow text around vector or bitmapped graphics, straight or contoured (with standoff) into the areas of the graphic that use colour 0, which is made transparent. *Wordworth 3's* runaround doesn't work properly – it sometimes pushes text into the right-hand margin, and sometimes tries to put text between a graphic and the left-hand margin when there is zero space available for it. Other times it doesn't recognise the bottom of a graphic correctly, so the tops of letters are obscured by parts of the graphic. Depth arrangement is supported by both programs, enabling any element to be sent to the back or to the front. *Wordworth 3* has a **Move Forward** option that brings an element forward one level.

One of the more advanced *Wordworth 3* drawing tools is the one for creating tables. A table is like a miniature spreadsheet. In fact some people call them *spreadsheet objects*, although, as good as they are, that's a little too grand a name for *Wordworth 3's* tables. As well as being able to move the finished table around with the text and numbers in it intact, you can also perform some simple calculations on rows and columns and have the result automatically entered into the table. You have complete control over the size of the grid, and the size of the cells in the grid. After entering a value in a cell, pressing the **Tab** key moves you to the cell to the right, or to the beginning of the next row if you are at the end of a row. Pressing **Return** in a cell makes the cell deeper, entering more text than will fit in the width of a cell will cause the cell to become one line deeper and the text will automatically wrap to fill that space.

If you regularly require information to be presented like this, *Wordworth 3's* **Tables** tool will be a massive time saver for you. But what a pity you cannot save tables, nor import data into them! No graphic element in *Wordworth* can be moved or copied out of a document window, so there's no chance either of pinching standard tables for a fresh document from an existing document. Aaargh! Why don't program designers think these things through?

PRINTING

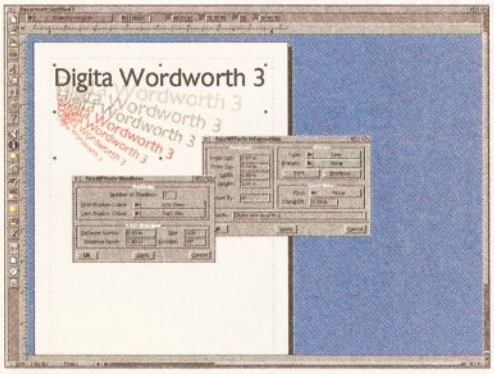
Wordworth 3's printing facilities remain pretty much unchanged from version 2, although the requesters have been reorganised to make them much easier for beginners to use. In the **Normal** print mode, where the font or fonts that are on the screen (bitmapped and/or outline) are used, graphics may be mixed with the text. In Printer Font mode the fonts inside your printer are used, provided *Wordworth* has bitmapped screen versions of them, and no graphics can be included in the document. *Final Writer* can only print a quick draft printout using a printer's built-in fonts. It's equivalent of *Wordworth's* **Normal** printout mode contains almost exactly the same standard features, the only addition being the ability to choose which named section of the document to print.

Printout speeds differ according to the speed of your Amiga, according to the speed of your printer, and according to what you are printing. *Wordworth* prints text-only documents in **Normal** mode and in black and white in about 15 per cent less time than it takes *Final Writer* to do the same thing. Put a picture in the document and print in greyscale or colour mode, and *Final Writer* will print it in about

FINAL WRITER RELEASE 2

Softwood Products Europe have asked us to inform all *Final Writer* owners that you will be able to upgrade to Release 2 either for a very low cost, or for free, depending on the date you registered. *Pen Pal* and *Final Copy II* owners can also upgrade to *Final Writer* at reduced cost.

Contact Softwood Products Europe on ☎ 0773 836871 for full details.



The TextEffects feature is what Digita think will sell Wordworth 3, but is just an eye-catching gimmick that is of very little practical use.

30 per cent less time than it takes *Wordworth*. Because what they are printing is essentially one massive A4 sized bitmapped graphic, usually at 300 or 360 dpi, even with a fast printer and a fast Amiga, either program will take minutes rather than seconds to spit out pages. With a slower Amiga and a slower printer, a mixed page of text and graphics could well take half an hour to finish. But that's graphics printing for you, it is the same on all computers, not just the Amiga.

Quality-wise, **Normal** text printouts from *Wordworth 3* and *Final Writer* are indistinguishable from each other. Both are extremely good quality. Studying several printouts of coloured and greyscale graphics, *Final Writer's* appear to have more shades and a less contoured appearance than pictures printed with *Wordworth 3*. Having said that, the supplied *Digita Print Manager*, the special version of *Studio Printer Software* that works just with *Wordworth*, will enable you to enhance *Wordworth's* graphical output to a level far superior to that possible with *Final Writer* using the standard Workbench drivers and preferences programs. I remind you that *Digita Print Manager* will install only to hard drive.

PostScript printing mode has not yet been implemented in the first release of *Wordworth 3*, despite the fact that it is fully documented in the manual. When this part of *Wordworth 3* is finished you will be able to print PostScript in greyscales only, using only those fonts from the "classic 35" that are inside your PostScript printer – no downloadable fonts in other words. There will be no control over screen density (so the printer's default density will be used), no control over the PostScript page size (although horizontal and vertical offsets are supported), and no crop or registration marks. Page scaling and rotation will be supported, but it will not be able to print thumbnails. All in all, when PostScript printing is implemented for *Wordworth 3*, it will hardly be worth having. *Final Writer*'s PostScript features are certainly not extensive when compared to a professional publishing program, but at least colour, screen densities and angles, and downloadable fonts are supported.

GROUNDS FOR COMPLAINT

I am not at all happy with the unfinished state of *Wordworth 3*. Apart from the several frustrating little bugs mentioned earlier, *Wordworth 3* uses chip (graphics) memory like it is going out of fashion. There's nothing particularly unusual about this, but when *Wordworth 3* gets short of chip memory it has a bad habit of either making strange things happen on the screen, or in printouts, or it simply freezes or crashes the Amiga.

Upon quitting *Wordworth 3* I was regularly left staring at a blank *Wordworth* screen – while the program had closed down, its screen had not. This disturbs me and I wonder how extensively the program has been tested.

If *Wordworth 3* was an electric kettle, then what we've got here is definitely the flashiest looking kettle in the shop – it is the kettle with the most interesting looking buttons on it, the kettle that wouldn't look out of place on the mantelpiece, the kettle that claims it can pull out the tea bag, spoon in the sugar and then give it a stir, plus boil an egg at the same time. But this kettle has some flaws. One flaw is that it keeps cutting out before the water has reached boiling point. What is shocking is that the manufacturer knew that the flaws existed, but because they promised everybody it would be ready by a certain date, they shipped the kettle anyway, flaws and all.

If you bought this kettle you would take it back and ask for a full refund, to which you would be entitled because the kettle is of unmerchantable quality. A kettle is supposed to boil water. If the manufacturer asked you to hang on to it and said that they, on some unknown future date (which might be next week or in a few months for all you know) will eventually send you a kettle that does boil water, you would probably laugh at them. If they then refused to refund your money you would probably contact a consumer organisation or The Office of Fair Trading.

But *Wordworth 3* is not a kettle. It is a word processor. Its job it to process words and it can process words. So, in the eyes of the law, it is of merchantable quality. If you buy *Wordworth 3* and find you are unhappy with the number of bugs it contains, you will probably have a very difficult job getting your money back. If, after buying it, you are prepared to wait, I'm sure you will eventually receive a less buggy version, probably sooner than later, but of course there are no guarantees. In the meantime, as the manual informs you, if you have any problems you can always get Digita Technical Support to help you by phoning them between the hours of 11am and 5pm.

I really wanted to say nice things about *Wordworth 3* because it promised so much. But it has been released too early. Crashes I don't like, but I can (and do) live with them if I know what to avoid doing. The bugs that affect the layout of a document I cannot live with because it means that minutes or (aaaargh!) hours of work may have to be done again. Bugs apart, among other things *Wordworth 3* lacks style sheets, it lacks proper master pages, it doesn't take advantage of the Amiga's clipboard, nor Workbench 3 DataTypes, nor ARexx, it has poor PostScript support, it cannot import structured drawings that have been created by any Amiga structured drawing program. Sorry, Digita, you blew it. And I guess that's me struck off the Christmas card list. AS

STOP PRESS!

Digita have announced the imminent availability of a version 3.0a of *Wordworth*, intended to correct some of the problems mentioned here – turn to page 4 for the hottest news in the business.

WHAT
Wordworth 3
WHO
Digita International Ltd
WHERE
Black Horse House, Exmouth EX8 1JL.
☎ 0395 270273

CHECKOUT
Wordworth 3

Ease of Use — 63%
In this unfinished state it is difficult to use because some basic features don't always do what they are supposed to do.

Output — 89%
HAM and 256-colour pictures do not print quite as well, nor quite as quickly, as they do from *Final Writer*, but *Wordworth 3's* text output is just as superb. Alas there is no PostScript support yet, and, judging by the manual, when it arrives it will be poor compared with *Final Writer's* PostScript facilities.

Performance — 71%
Printing speed has been improved, but *Wordworth* is still slower than most rival packages at printing documents that have graphics in them. Screen refresh is disappointingly slow when word processing in eight or more colours, even on a 4000/040.

Documentation — 89%
A well written, well-produced, 330-page, perfect-bound manual. But considering *Wordworth's* high price I would have expected it to be spiral-bound so that it could be opened flat in order to follow the step-by-step tutorials.

Facilities — 82%
A fair number of new features that, in theory, should enable you to produce better documents more quickly. However I was particularly disappointed that style sheets have not been implemented and that picture frames cannot have borders.

Value for Money — 48%
Releasing a product that costs this much in an unfinished state is one of the nastiest things a company can do to its customers.

Overall rating — 65%
It's only half finished. When the bugs are fixed it may well score better.

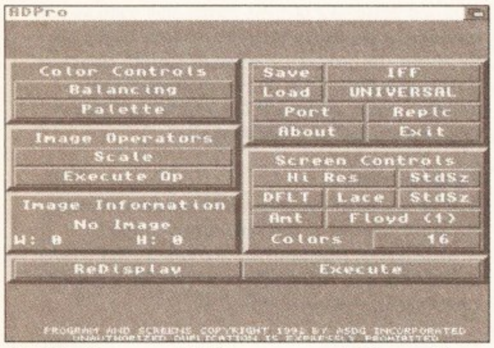
Getting better all the time

ASDG have met the competition and released a new version of their famous image processing program – Art Department Professional. Gary Whiteley looks behind the scenes and gives his verdict.

Product: ***Art Dept Professional***
Price: ***£149.95***
Supplier: ***First Computer Centre***

Once, an artist's tools were paper, pencils, paints, charcoals, canvasses and observant eyes and steady hands. But times change, technology forges ahead and techniques expand. Virtual artists are becoming increasingly commonplace, hanging their works in electronic galleries facilitated by television, CD-ROMS, computer disks, bulletin boards and the ever-expanding information networks. And all this thanks to the meteoric rise of powerful, affordable computers over the last decade.

With this upsurge in electronic art comes the need for new creative tools, which is where an image processing program like *ADPro* comes in. It's all very well importing images, or even creating your own masterpieces, but there are many instances when simply producing an image isn't sufficient. The plethora of computers available today has spawned a confusing number of different image formats – IFF, GIF, PCX, BMP, JPEG and TIFF to name but a few of them. Many need converting before they can be either imported into the Amiga or exported from it. Consequently, image processing programs such as *Art Department Professional* provide many of the additional tools needed by today's electronic Da Vincis – those artists who are hanging ten on the surf of the sea of virtual creativity.

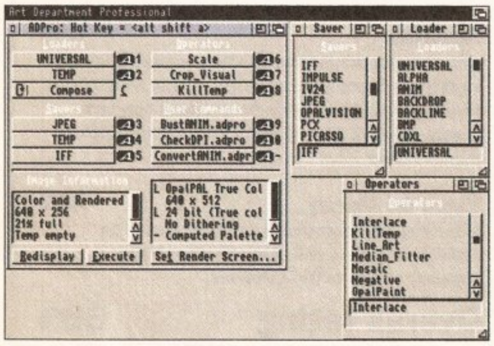


(Fig 1). Seasoned ADPro users probably won't recognise ADPro v2.5. This is what Art Department Professional used to look like...

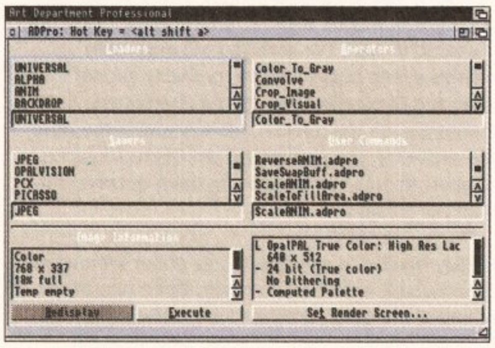
REMAKE REMODEL

Seasoned *ADPro* users probably won't recognise *ADPro v2.5* at first glance. Gone is the familiar user interface (Fig 1) with its large buttons and needle-type 'fuel gauge'. In comes a radically redesigned interface which can be customised by the user and opened in a variety of different circumstances, making it altogether more flexible. Most of this redesign is aimed at bringing *ADPro* into line with the Amiga's current operating systems (AmigaDOS 2 and 3) and style guides and, as a result, virtually all of the available file requesters, menus, gadgets and interfaces have been standardised to follow the accepted guidelines.

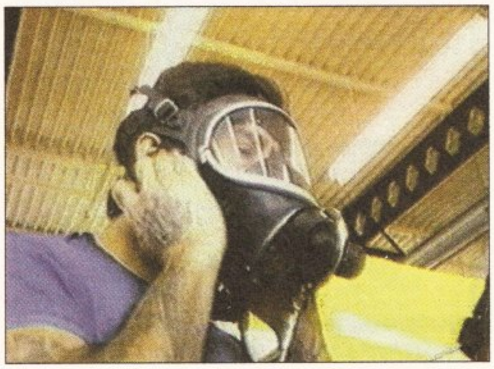
Instead of the old low resolution, non-interlaced custom interface, *ADPro* can now be opened on any public or Workbench screen or on its own dedicated screen. Any available screen resolution can be used, including AGA, and the user has a wide choice of what, how and where *ADPro's* interface can be displayed and operated.Two main choices of interface are now available, a compact one with buttons and **Tear-Off** lists (Fig 2) and a full-screen requester-type interface (Fig 3). The button interface can easily be customised to contain your favourite or most-used tools, whilst other **Loader**, **Saver**, **Operator** and **User** modules can be displayed and accessed from within their own resizable windows. Changing tools in the button interface takes just two clicks of the mouse and a quick press of the shift key before you're ready to roll. The new look took a bit of getting used to, but quite soon I was processing away happily, using either of the new interfaces and not missing the old look at all!



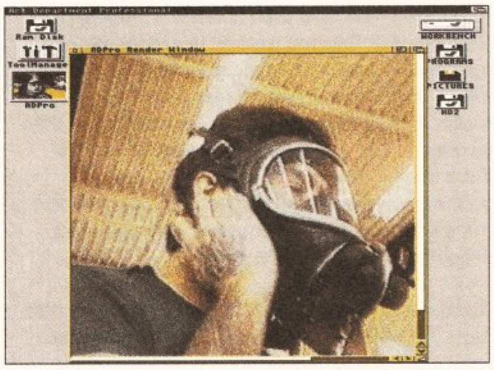
(Fig 2). ...but a radical re-design has come up trumps with a choice of either a configurable 'Button' interface ...



(Fig 3)...or a full-screen requester, both of which make control of ADPro much more straightforward.



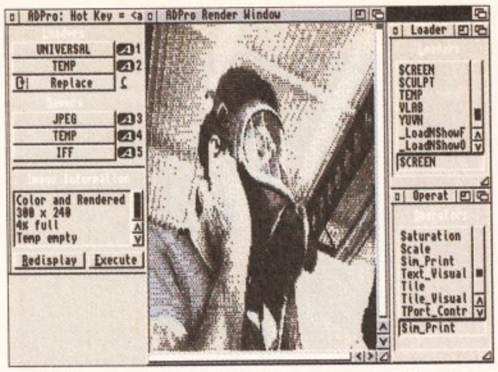
(Fig 4). ADPro 2.5 can display images in full glory on a variety of fully-supported display cards...



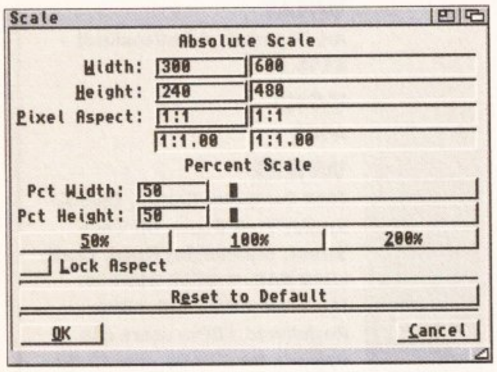
(Fig 5)...or on the Workbench screen or any public screen such as Directory Opus ...

EVEN MORE GRAPHICAL

Though recent versions of *ADPro* had limited support for several graphics cards there was no direct way of displaying an *ADPro* image to them. OK, it didn't take too much effort to display a graphic on, say, a Harlequin, Retina or Opalvision card, but any mouse or keystrokes saved help reduce the time spent navigating round the screen and contribute toward increased productivity. So ASDG has incorporated a feature to allow the user to choose their preferred rendering device or method, be it Picasso, Firecracker, Harlequin,



(Fig 6)...or even on ADPro's own screen, in each case utilising the screen mode and resolution in use at the time, which could be anything from 2 colour lores to hires AGA (where available).

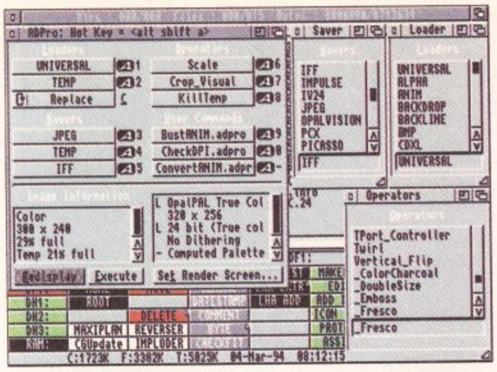


(Fig 8). Even small changes to existing operators make big differences. This is the revamped Scale interface.

Retina, OpalVision, EGS, IV24, or even Amiga (including AGA, of course), and then display the current image in the method of your choice when the **execute** button is hit. It's a small touch, but it makes a big difference. Even if you don't have a graphics card, changes have been made to enable *ADPro* to render its display to any available screen by using that screen's palette and resolution for the display itself.

HOT KEYBOARD

Another new departure (for *ADPro* at least) is the inclusion of keyboard shortcuts for menu items, providing a choice between mouse and keyboard-driven operations at any time. This helps speed up access to *ADPro's* functions and features and,



(Fig 7). ADPro can now be opened on any public screen as well as its own, as seen here on a Directory Opus 4 screen.

once mastered, you'll find yourself using both mouse and keyboard interchangeably with little hesitation. And if you get completely trigger happy, *ADPro 2.5* even has pull-down menus to back-up those in the interface requesters. So I don't want to hear any more complaints about *ADPro* not being user friendly, OK?

There's even a new set of ARexx programs (for both *ADPro* itself and **FRED**, *ADPro's* sequence processor) that make performing many of *ADPro's* most used operations easier. For instance, to load an image with the **Universal loader** (which will directly load most of the formats that *ADPro* recognises) all you need do is hit **Right-Amiga-o** and select your image from the file requester that pops up. Almost as easy as clicking the **Universal loader** button itself, but that's not the point. ARexx commands make it easy for any ARexx-supporting software to call *ADPro* and its ARexx routines directly, allowing applications to be linked together for even greater power. As such, *ADPro's* use of ARexx is not unique, but the provision of more ARexx scripts will be a boon to many power users.

Beyond these outwardly cosmetic (but inwardly functional) changes quite a few important alterations and additions have been made to *ADPro 2.5*. Possibly the most important of these is the addition of several new loader modules which provide support for FLC files (a PC animation format), ICO (Microsoft icons) a ICON (Amiga.info icons) files, and CDXL format (the data format used for CDTV and CD32 files). Silicon Graphic's *SGI* image format, as well as *Alias* and *Wavefront* (all three are formats for top end 3D workstations such as those used in Jurassic Park), are now included, as well as a **Fractal2000** data loader and a **PAR-PEG** loader for importing stills or frames from animation files recorded to DPS's **Personal Animation Recorder (PAR)** hard disk system. A new saver has been added to handle printing to Fargo's Primera dye sublimation printer (a new printer that produces almost photographic quality colour prints – see the review on page 24).



(Fig 9). This Fresco effect is just one provided by several new 'pseudo operators' supplied with ADPro 2.5.

WHAT IS ART DEPARTMENT?

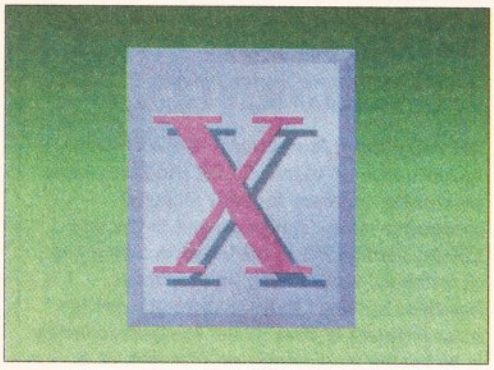
***Art Department Professional* is one of the Amiga's revered veterans, and the first image processing software to really make an impression on the Amiga market in the late 1980s. Version 2.5 is the latest in a long line of revisions, each adding more features, functions or speed to keep them abreast (or indeed ahead) of their rivals. Image processing is becoming increasingly popular and, as a consequence, more software companies want in on the act. But what *is* image processing? Now that's a big question which requires a big answer. Image processing can be many things. Converting files from one image format to another, for example from non-Amiga formats to those which *can* be used on the Amiga is a very popular use, but this is only one aspect of image processing. Images can be scaled or cropped, have their palettes reduced, expanded or remapped. They can be flipped, smoothed, sharpened or otherwise altered or enhanced, have text added, or be composited one with another to make a completely new image. DTP users could use it to produce colour separations whilst DTV'ers might collate animations from a series of disparate frames. Effects can be applied to images, and their formats and resolutions can be adjusted to suit the user's needs. Image processing software is used by graphics artists, illustrators, publishers, animators, video graphics producers and many others. Most users will confirm just how important such programs are and *ADPro* is just one of several programs which can fulfil many of their image processing needs.**

There are also a few new *pseudo* operators – in other words routines which perform a combination of image processing operations on a loaded image. New varieties include **ColorCharcoal**, **Fresco**, **Highlight** and **Solarize**, all of which provide some interesting artistic effects.

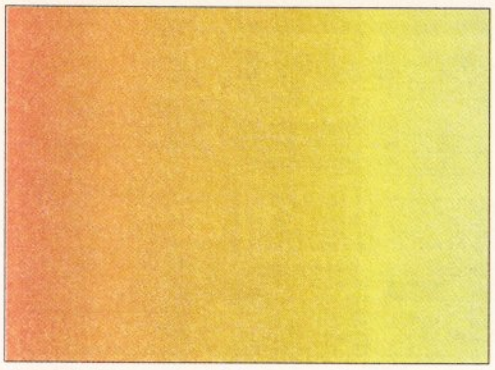
COMPOSITING IMPROVEMENTS

Several big improvements have been made to *ADPro's* compositing functions, making the combining of several images both easier and more powerful. A new visual interface has been added to facilitate placing the images in the desired relationship to each other and it is now possible to specify a range of colours to be replaced by the incoming image, rather than a single colour as was previously the case. This feature works well, as you can see from the accompanying illustrations.

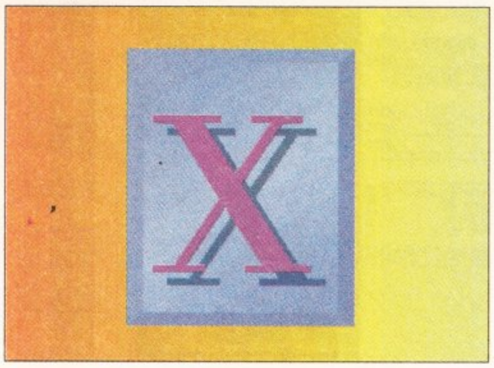
Changes have also been made to how *ADPro's* alpha channel works. Previously only grey scale (8-bit) images could be used for making alpha channel masks (to allow variable density compositing), but now any image can be applied to the alpha channel, making it altogether easier to use. Alpha channel information can also be incorporated (and saved) with any image, thus making loading and compositing simpler. In case you're wondering what an alpha channel is for, here are a couple of key uses: travelling mattes for cleanly keying and blending an animated image over a sequence of background images, and



(Fig 11) Here's a foreground image with a graduated background.



(Fig 12) It is composited over another graduated background with very little effort...



...something not immediately possible with earlier versions of ADPro. The result can be seen above.

graduated transparency applications for text backdrops (as commonly seen in TV graphics).

ANIMATION OPERATIONS

Perhaps in an attempt to appease those of us who have previously remarked on the trials and tribulations of using *FRED, ADPRo's* sequence processor (or FRame EDitor), ASDG has added three new animation utilities (known as **AnimOps**) to help ease the pain. Each works in tandem with *FRED* and *ADPro* itself. *FRED* itself is little changed, though a number of new ARexx scripts have been added to make its functioning easier. The trouble is, like many other people, I'd still rather use a third-party utility, such as *ProCONTROL*, instead of *FRED* because I find *FRED* long-winded, occasionally awkward and not especially user-friendly.

The first **AnimOp**, the rather inappropriately-named **Cinemorph** (not to be confused with GVP's *CineMorph* morphing software) will have very little use in PAL regions of the world, as it is used to convert animation sequences which run at 24 frames per second, which also happens to be the rate that most 16 or 35mm cine film is shot at, to 30 frames per second (the frame rate of NTSC video) or vice versa. That's just about all it does, unless you feel like changing formats while you're at it.Compositor, the second **AnimOp**, combines two of *FRED's* previous **AnimOps** (**Compositor** and **Alpha_Compositor**) into one **AnimOp**, along with more options and controls. This is a utility for allowing sequences of images to be composited together, using an alpha channel as well if desired. As a result, lone objects can be composited over a background sequence, or wipes and fades performed by compositing pre-prepared sequences together, for instance. **Time_Stretch** is the third **AnimOp** and, as its name suggests, it is used for either stretching or shortening the duration of a sequence of images. **Time_Stretch** does this by calculating new frames to fill in between existing ones (when extending), or combines existing frames together (when compressing). It's like a more flexible version of **Cinemorph**. Unfortunately, all the sequences I tried it on didn't look that great after processing, since added artifacts spoiled the overall look.

THE VERDICT

This new incarnation of *Art Department* goes a long way to addressing many of its previous shortcomings (when compared to its rivals) and it provides a welcome new look, as well as much-improved access through its new interface(s). Compositing operations have benefitted, particularly as far as colour range selection is concerned, but the visual compositing screen is a good thing too. Even the manual seems to have been significantly overhauled and it is no longer top-heavy with ARexx. The tutorials are useful, if still a little thin on the ground, though I have to say that more explanation of *FRED* and the **AnimOps** (great name for a band) is still required, especially some lucid tutorials on their use.

Overall, with the improved support for both 24-bit cards and AGA and a new injection of processing speed, plus the more refined interfaces, added **Loader**, **Saver** and **Operator** modules, *Art Department Professional 2.5* looks set to provide high-quality image processing for Amiga graphics fans for a long time to come yet. If you already have an earlier version of *ADPro* I'd recommend you upgrade as soon as possible. If you're looking for an image processor, *ADPro* is still up there with the best of them. Check it out soon. AS

THE COMPETITION

Obviously *Art Department Professional* has been released to keep ASDG in close rivalry with both GVP's *ImageFX* and Black Belt's *ImageMaster R/t*, each of which poses a major threat to *ADPro's* previous domination of the image processing market. Whilst all three programs have features which set them apart in one way or another they all offer many similar features and functions, though *ADPro* lacks most of the paint tools of the other two and, in some instances, lacks their flexibility over a range of functions. *ADPro* more than makes up for these deficiencies in increased processing speed, however, as well as of course including some functions that neither of the other programs have. In some areas *ADPro* is still playing catch-up, adding functions which either *ImageFX*, *ImageMaster* (or both) have had for some time. This release is timely enough to put the spotlight back on to ASDG's product, but it will have to work hard from now on to consolidate its market share. The competition in this end of the creative graphics market is obviously intense, and there can't be much leeway for nonchalant players at the moment. Not that ASDG can be accused of nonchalance, but it does appear as if it's going to have its work cut out from now on.

WHAT
Art Department Professional – £149.95

WHO
ASDG

WHERE
First Computer Centre, Unit 3, Armley Park Court, Off Cecil Street, Stanningley Road, Leeds LS12 2AE. ☎ 0532 319444. Meridian ☎ 081 543 3500. Registered ADPro users can upgrade for £39.99 plus £3.50 p&p from Emerald Creative Technology, ☎ 081 715 8866.

CHECKOUT ADPRO 2.5

REQUIREMENTS
Any Amiga with AmigaDOS 2.04 or later, at least 4Mb of fast RAM and a hard disk drive. Accelerator and more memory recommended.

Documentation 85%
Certainly an improvement over the previous offering, but still not explicit enough on *FRED*, **Sentry** and several of the more complex processes, modules and utilities.

Ease Of Use 90%
The revamped interfaces (particularly the compositing one) offer many advantages, including improved access, though *FRED* remains rather unwieldy. The new support for graphics cards and extra display modes is also a welcome bonus.

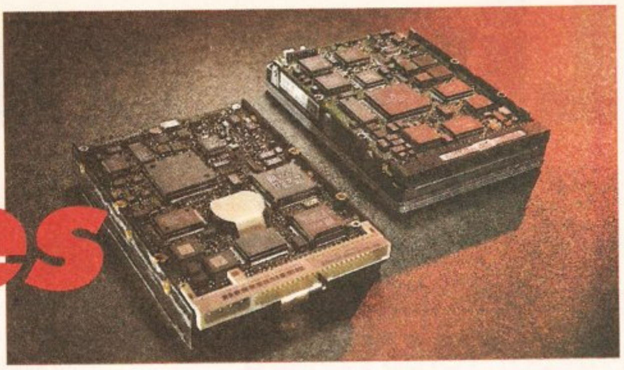
Speed 95%
Now even faster! *ADPro's* new turn of speed will please everyone, perhaps especially heavy-duty image processing users.

Features 90%
Whilst still lacking some of the functions of its competitors, *ADPro 2.5* takes ASDG's top Amiga package to even greater heights.

Price 85%
Powerful software at a not too unreasonable price.

Overall 90%
ADPro remains the prime choice for many Amiga graphics professionals and this new version will do nothing if not keep them faithful.

Hugely Big Drives



With prices of mass storage falling, Pat McDonald checks out two Gigabyte drives.

Hard drives give you many megabytes of storage for when you want to turn your Amiga off and they load and save files much faster than floppies do. These days you can get big sizes – the two drives under review are both larger than one gigabyte (1,037,741,824) bytes or characters of information).

Most hard drives available today are the IDE type – Integrated Drive Electronics, or *I Do it Eventually*. IDE drives are cheap and cheerful, and are the standard type found on A1200s and A4000s. However, they are a little slow and less expandable than the SCSI (Small Computer Systems Interface) drives often found on older Amigas. SCSI hard drive controllers have a 25 pin D connector for adding external hard drives, much like daisy chaining additional floppy drives.

The drives under review are both 1Gb, one by IBM and one by DEC. Both are ideally suited for a SCSI-2 controller. The difference in standards between SCSI and SCSI-2 are mainly speed (SCSI-2 goes faster) and the number of extra devices you can have plugged in. SCSI only supports seven, whereas SCSI-2 lets you have up to 15. SCSI devices don't have to be hard drives – you can also get SCSI scanners and tape streamers, although they are more expensive than non-SCSI types. The bottom line is that if you have a SCSI controller, you can plug in and use a SCSI-2 drive.

I started with the IBM drive, as I had been advised by the supplier that if the case was shorted to a ground (often done on earlier hard drives) then the heads would lock and the drive would not respond. Sure enough, a bodge installation was not really good enough – I could set up two 500Mb partitions, but neither had time to format before the heads reset and I had to reformat.

Setting up six partitions partially solved the problem, but I had to format them all simultaneously. Which is easy if you know how to format disks using the Shell, but if you are a Workbench only user you would have problems. The partitions were called **The4**, **Horseman**, **Death**, **War**, **Famine** and **Pestilence**. The first five behaved fine, but **Pestilence** simply would not format. After I had made sure the case was electrically insulated, these problems disappeared.

In everyday use, the IBM is fine. It's quiet and gets up to speed quickly, an important consideration if you reset fairly often. It seemed to tie up the SCSI chain less than the DEC drive, but in terms of loading and saving data it is slower – about 5 per cent. Perhaps it has a bigger internal buffer.

The DEC drive is a complete contrast to the IBM. I didn't have to bother with masking the case from the housing – I just plugged in, set the ID number from the diagram on the case and got on with it. The IBM comes with over 100 pages of technical documentation. It must be ideal for insomniacs if nothing else, I suppose.

Another thing about the DEC – it's noisy, having a couple of clunky relays that make it sound like an old telephone exchange. Even when the relays aren't going, you tend to notice an odd hi-tech muttering, a bit like the autofocus mechanism on a camcorder. Finally, although it did seem to hog the SCSI bus a little more, it's faster. I set up a 9Mb animation to copy onto each drive 10 times. The DEC took 700 seconds, while the IBM took a tad over 12 minutes. With a SCSI-2 controller, the drives should have done the same operation in a fifth of that time.

So, why getting one? For a start, you can always hope you will get an A4000 with a SCSI-2 controller, and start using the drive now. For another, even without a SCSI-2 controller, you do get a slight increase in access speed (large hard disks have smaller access times than smaller sizes). If you want to produce some really large Amiga projects, then you need the workspace to store it all. Starting off with, say, a 3Mb A500 and a GVP hard disk controller, you could at least make a start with one of these, and transfer the information over to a bigger system when you have the backing. Which one did I prefer then? It's a difficult choice but I guess it has to be the DEC. It's noisy, but not as fussy as the IBM. Both drives can be installed for a sum of about £20, assuming you already have a suitable housing. AS

BLITS & BOBS

A 1Gb drive has enough storage capacity to produce 40 seconds of full colour broadcast animation. That's enough for a television commercial.

CUTTING EDGE OR WHAT

Definitely a case of "or what". SCSI-2 drives are big and fast, but without a suitable purpose they are just a status symbol. It's not what you've got, it's what you do with it. Admittedly, there are some things you can do with a 1Gb drive that you can't do otherwise. For instance, if you had a PC emulator and a CD-ROM, you could copy the CD-ROM on to the hard disk, giving:
a.) much faster access speed and
b.) better compatibility.

However, state of the art SCSI-2 usage is definitely in the hands of the video professionals – major networks like the BBC. The Quantel Chatterbox system is a dedicated SCSI-2 controller that handles over 150 of these hard drives simultaneously. This gives enough storage to handle over one and a half hours of broadcast quality sound and vision that you can edit to your heart's content without losing any quality because it's all stored digitally. Supplied without ear defenders.

One definite Amiga usage for a SCSI-2 1Gb drive is developing titles for CD32. A small budget Philips CD-I title costs perhaps £150,000. A pocky Amiga with one of these drives and loads of graphic artists with floppy based systems could produce some stunning CD32 titles for a fraction of the cost – assuming all the people involved are enthusiasts and therefore are prepared to do the work before being paid. Do remember to get a license from Commodore before selling your title.

WHO
Anglo European Systems
110-112 Curtain Road, London, EC2A 3AH. ☎ 071 729 1414
Fax 071 729 0909
WHAT
1 GB IBM and DEC Hard Drives
WHERE
Price £839 inc VAT and delivery. Installation £18.80 (London and Home Counties only).

CHECKOUT 1 GB HARDDRIVES

Features	**83%**
You can get 2Gb drives, but not for this price.	
Documentation	**91%**
Totally irrelevant unless you need all the information.	
Ease of Use	**58%**
Fussy to get set up unless you are familiar with adding SCSI units.	
Performance	**97%**
With a SCSI-2 controller, of course.	
Value for Money	**82%**
Less than £1 per meg, with lightningly fast access.	

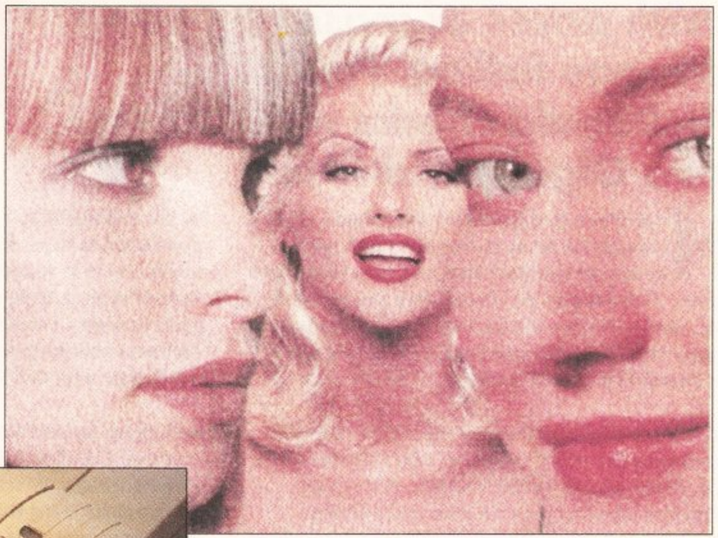
Overall rating 84%
If you are tired of just thinking big, get several.

Live and let dye

Jeff Walker marvels over the Fargo Primera printer's stunningly photorealistic output.

Product: Fargo Primera
Price: £649
Suplier: Power Computing Ltd

It is like a breath of fresh air to find a printer manufacturer going out of its way to ensure Amiga compatibility with a new model, especially as the Fargo Primera is a high-end printer that is not going to be bought by the masses but by a relatively few people who have a need for its speciality — photorealistic output.



With extra printing software you can get better (but not good) photorealistic results from thermal wax ribbons by printing 24-bit graphics. This picture was printed by Studio using a Blue Noise (randomised) dither.

Provided with the *Primera* is a *starter* 3-colour thermal wax ribbon that will give 30 printouts, and you are given 25 sheets of Fargo's standard grade thermal transfer paper and five sheets of transparency film to print on to. Thermal wax? Wassat, then? Well, there is one major advantage to the thermal wax printing method — brighter, sharper colours. Because the wax deposited on to the surface of the paper does not soak into the paper, colours never fade or run as they can when printing with dot-matrix or inkjet printers.

The Primera is able to print up to 256 shades each of the three primary printing colours, cyan, magenta and yellow (**CMY**), which means that up to 262,144 colours are possible (256x256x256), or 18-bit colour to put it another way. Alas, the Amiga can print only 12-bit colour (16 shades each of CMY), so, as with most high quality colour printers these days, to get the best out of the Primera you will need to buy some printer software that supports 18-bit colour printing (or better). It is also worth noting that **CMY** printouts can have a slight washed-out appearance, and this is rectified by adding black (**K**) to the printing process, which you can do by buying the 4-colour ribbon when you've used up the freebie one.

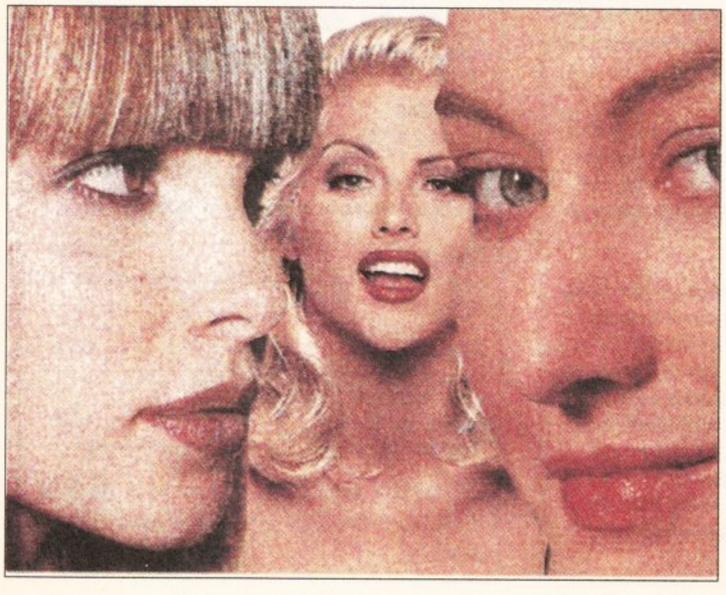


A Primera printer in all its glory

In thermal wax mode the Primera cannot actually print thousands of solid colours, it creates the colours by arranging the dots of **CMYK** into tight patterns that fool the human eye into seeing more colours in the picture than there actually are. The same type of process is employed by dot-matrix and inkjet colour printers, and even to print this magazine come to that. How well the eye is fooled depends on the arrangement of the dots and how close together the dots are printed. As the Primera has a resolution of 200 dots per inch (**dpi**), the patterns in thermal wax printouts are always easily visible when printing many-coloured graphics, but for simple graphics (graphs, charts and logos for example), provided you choose suitable colours, you can get a fair number of solid ones. And because the Primera prints graphics pixel line by pixel line, rather than in strips of pixel lines as dot-matrix and inkjet printers do, there is absolutely no banding whatsoever in the printouts.

Weighing the comparatively low 200 dpi unbanded thermal wax output of the Primera against the 300/360 dpi banded output of dot-matrix and inkjets is difficult. As the Primera has no text features to speak of (just a solitary 12 cpi LetterGothic font) then perhaps the Hewlett-Packard *DeskJet 550C* or Canon *BJC-600 bubble jet* might appear to be better options because they have higher resolutions, many more text features, and only very slight banding when printing on to high quality paper. But the Primera has an ace up its sleeve, the photorealistic upgrade kit.

The photorealistic upgrade kit turns the Primera into a dye sublimation printer. A simple change of ribbon and print density setting means that **CMY** dyes are used to print with instead of wax. Now the thing about dyes is that they can be mixed together to produce solid dots of real colour. This makes a massively enormous, gigantically big difference.



With the thermal wax ribbon, HAM-8 photorealistic graphics do not print well. It's best to stick to a few simple colours, cartoon type graphics, charts, graphs – that kind of thing.

In thermal wax mode the 200 dpi resolution of the Primera is, in effect, reduced by dithering (the process of arranging the **CMYK** dots into patterns) to 50 dpi or less. But with dye sublimation no dithering is required to simulate colours, so graphics are printed at the full 200 dpi resolution. To give you an idea of how much of a quality increase this is, a printer that dithers dots of CMY to simulate up to 4,096 colours would have to have a resolution of 800 dpi to even attempt to match the quality of the *Primera's* 200 dpi dye sublimation output.

Although it sounds like the photorealistic upgrade

BLITS & BOBS ***Did you know, for example, that the next step up in dye sublimation from the Fargo Primera will set you back a hair-raising £6,500?***

kit is some kind of bolt-on hardware, it actually comprises just a 25-print ribbon and holder to put it in, plus 10 sheets of special paper. This paper is very similar in feel to the stuff you get photographs on, but a tad thinner, and you have to use it — dye sublimation doesn't work on ordinary paper. To *upgrade* your Primera you simply remove the thermal wax ribbon holder and replace it with the dye sublimation ribbon holder. And it really is that simple. Open the printer lid, lift out the thermal wax holder, put in the dye sublimation holder, close the lid. No mess, takes five seconds.

Now, I know, this is maybe obvious to some, but I have to say it so that less experienced users don't get the wrong idea about dye sublimation printing: You will only get out of the Primera what you put in. Do not expect to be able to print 640 by 512 pixel graphics at 8in by 6in and get superb results. The Primera prints at 200 dots per inch, so 8in is 1,600 printer dots wide. If you print a 640 pixel wide picture 8in wide, every pixel in the picture will be about three printer dots wide and high, which will result in a blocky (or *pixellated*) appearance. Print the same picture about 3in wide and every pixel in the picture prints as one printer dot, so you get the best possible output resolution. If you want a graphic to print 8in wide without pixellation, the graphic will have to be approximately 1,600 pixels wide to start with. That's point number one.

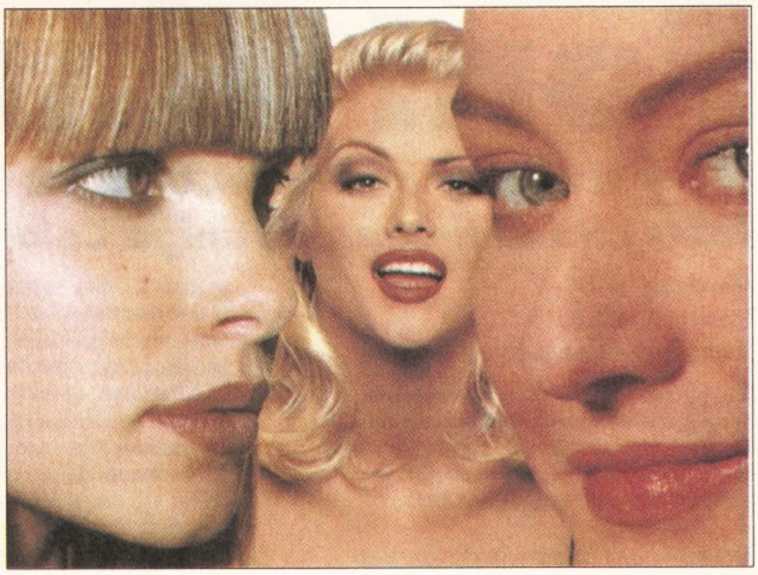
Point number two is that to get the best possible photorealistic results from dye sublimation you need to be printing 18-bit or 24-bit graphics, not 256-colours, HAM or HAM-8. As explained earlier, the Amiga prints only 12-bit colour (4,096 colours before colour correction), so even to print HAM-8 at its best you need special printing software. Currently you can choose between *ADPro 2.5*, which now has Primera support in its **PREFPRINTER** saver, or *StudioDS*, a special dye sublimation version for the Primera of the Studio Printer Software.

Using either package, the results of printing 24-bit graphics in dye sublimation mode are truly superb, a real price breakthrough in colour printing technology. The cost of the 100-print refill kit (ribbon and paper) is currently £250, which means each printout will cost you £2.50. Compared to inkjet cost-per-print prices that is a lot, but I cannot emphasise enough how stunning are the results.

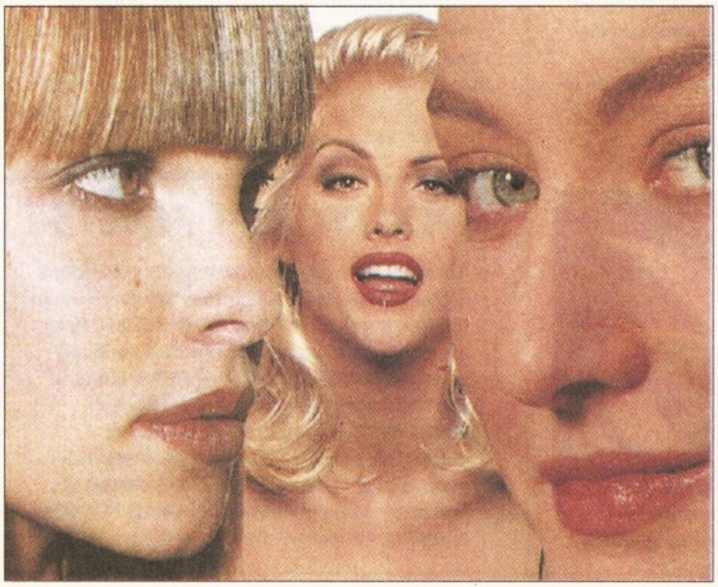
The automatic colour correction of the supplied printer driver and Printer Control Interface program is plenty good enough for the dye sublimation printouts to be used for rough in-house colour proofing, which could very quickly save the one-man-band desktop publisher enough money to pay for the purchase of the printer. Graphics artists and photographers might also be able to make some money from the Primera by processing scanned or PhotoCD graphics and then providing customers with customised pictures that could never have been photographed.

It's easy to imagine a powerful printer like this to be a great hulking beast that needs a desk of its own and makes enough noise to drive the cat out. Not a bit of it. It's teeny. Weighing in at 15lbs, the is just over a foot wide, just under a foot deep, and not even six inches high. And the most noise it makes is a little scratchy-cum-whining.

Difficult to set up? Nope. Plug it in, install the driver, load a picture into some program, print it. You'll find that Halftone is the best dither pattern to use when printing from standard Amiga applications, whereas the Floyd-Steinberg dither in *StudioDS* or *ADPro 2.5's* **PREFPRINTER** saver is the one that produces the jawsagging results that will cause people to shake their heads in disbelief and say, "Nah, you can't kid me, I bet that's *really* a photograph". AS



... the 24-bit output from ADPro 2.5 or StudioDS. If I showed you the original printout of this you would swear it was a photograph.



HAM-8 output straight from DPaint with the dye sublimation ribbon produces what appears to be excellent results until you compare it with ...

WHO WHERE WHAT

Fargo Primera	**£649**
With StudioDS	**£699**
Photorealistic upgrade	**£199**

From: Power Computing Ltd, 44a/b Stanley Street, Bedford MK41 7RW.
☎ 0234 273000

CHECKOUT
FARGO PRIMERA

Features **80%**
No special fonts or text style features, but then the *Primera* is a graphics engine. It prints monochrome thermal wax, CMY thermal wax, CMYK thermal wax, plus monochrome and CMY dye sublimation.

Print Quality **92%**
The photorealistic output is jawsaggingly stunning. Thermal wax graphics are only average quality because of the *Primera's* comparatively low 200 dpi resolution, although in its favour the colours are wonderfully bright and true-to-screen.

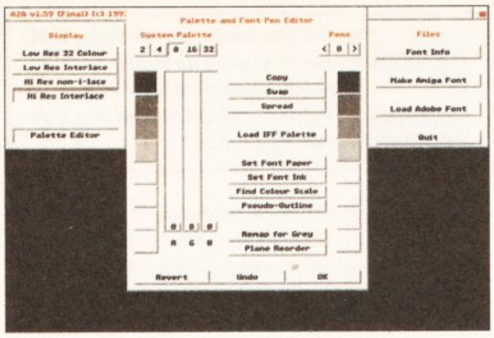
Speed **95%**
Thermal wax printing is fast, dye sublimation is a more complex process and takes four or five times longer.

Value for Money **92%**
With the dye sublimation upgrade, £900 and £2.50 a printout is a very reasonable price to pay for output that to the untrained eye is almost indistinguishable from a photograph. Top quality A4 dye sublimation printouts from an output bureau will cost you about £15 each.

Overall rating **93%**
If you work with 24-bit graphics and require printed output to match the quality of the screen display, the Primera will serve you very well and save you money.

Font Time

Gary Whiteley on how A2A turns Postscript fonts into anti-aliased Amiga Colorfonts.

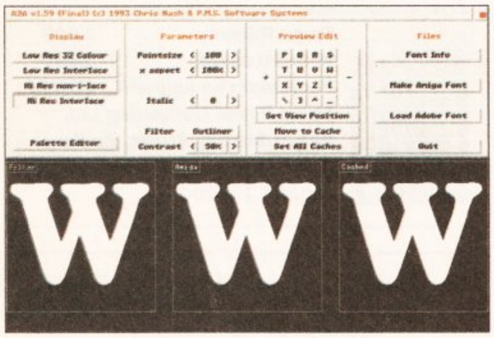


A2A gives you the unusual choice of using up to 32 colours to produce your anti-aliased ColorFont.

Product: A2A
Price: £50
Supplier: Alternative Image

Need to turn Postscript fonts into antialiased Amiga Colorfonts for DTV, graphics and presentation purposes? Then I highly recommend you doing it with P.M.S. Systems' brilliant new program *A2A*.

Some time ago I reviewed Zen Computing's excellent *AntiA* program for converting standard Amiga bitmapped and Compugraphic fonts into antialiased Colorfonts. The result? – simply stunning fonts for use in all kinds of graphic applications. But something was missing. No PostScript font support. Perhaps most folks didn't require such a feature at the time, but what if you had some fantastic Postscript Type 1 fonts that you needed to convert? The only way would have been to employ the services of an intermediary program such as Soft-Logik's *TypeSmith* or Gold Disk's *FontManager* to first convert the PostScript fonts into Compugraphic or standard Amiga bitmapped fonts and then use *AntiA* to produce the final ColorFont. Since *FontManager* was only supplied with later versions of Gold Disk's *Professional Page*, and both *TypeSmith* and *Professional Page* are commercial programs, then unless you had access to one of them you wouldn't be able to convert PostScript fonts to ColorFonts with *AntiA* – which is where *A2A* comes to the rescue. *A2A* converts most legal Type 1 PostScript fonts (fonts which conform to the Type 1 PostScript guidelines) directly into fine-looking examples of antialiased ColorFonts.



A2A is a new utility for converting PostScript fonts to anti-aliased ColorFonts.

HERE'S HOW

Using *A2A* is almost simplicity itself. OK, it's not *entirely* plain sailing, because you have to make a few choices if you want *A2A* to give its best. It's no use pleading that you don't need *A2A* just because you don't have any PostScript fonts. Two disks packed full of shareware Type 1 fonts are provided and there's hardly a duff-looking one amongst them. After loading up your chosen font, the next thing to do is to decide upon the resolution and size at which you'd like to output the converted font. This will largely depend upon the capacity of your Amiga and the application/s you need to use the resulting font for. For instance, I always prefer to use hi-res interlace resolution because the results are far crisper than using any of the lesser resolutions, but *A2A* gives you a choice from all the four major Amiga resolutions: **lo-res**, **lo-res interlace**, **hi-res non-lace** and **hi-res lace**. If your Amiga can't cope with hi-res interlace you could always use a lower resolution instead. The next decision is to choose the point size. *Point size* is a bit of a misnomer, as it seems to relate more to the number of horizontal lines which make up the characters of the resultant bitmap font, but there we are. Fonts can be converted to sizes of up to 250 points, though the final size never seems to tally with the stated size, as can be confirmed when the font is loaded into a graphics or DTV program. Here are a couple of examples: 200 point in *A2A* becomes 221 in *DPaint*, likewise 75 point becomes 85 point. It's just a niggle which doesn't make a great difference, but it would be nice if it was consistent. *A2A* really starts to shine with its ability to squash or stretch a font horizontally from 25 per cent to 400 per cent, permitting the x-aspect to be scaled, and to produce thinner or wider variations than the original PostScript font provides. Then there's the **Italic** function, which lets the font be slanted either left or right by up to 45 degrees. If you're familiar with the way that bitmap fonts usually suffer from the jaggies when they are italicised, then you'll be pleased to know that *A2A* does a fine job. Not only because of its antialiasing techniques, but also as a result of the PostScript data remaining scaleable until its final conversion and storage as an Amiga bitmap font. Changing any of the parameters used in *A2A* is easy thanks to some intelligent software design. For small changes either point and click on the increment gadgets on either side of each numerical display or, for bigger changes, just use the right mouse button, pop up a slider box and either drag the slider or type in the number you want directly. Such features help to make *A2A* a very intuitional program to use.

FILTERS

An important part of *A2A* is its filtering system. Filters are how *A2A* smooths out the jaggies on a font while it is being converted into an Amiga bitmap. Deciding which of the five available filters to use (from **Box**, **Smear**, **Gauss**, **Luminance** and **Outliner**) seems to depend almost as much on

WHAT IS ANTIALIASING?

You know how chunky the edges of text can look in a bitmapped paint program such as Deluxe Paint? This is because everything on screen is built from discrete display units called pixels, which are larger when lower resolutions are in use. Whilst it's true that the edges of text (and graphics, for that matter) displayed on high res interlace screens looks less jagged, this is simply because the pixels that constitute it are physically smaller than those used in other resolutions. Hence lo-res images look the chunkiest of all.However, it is possible to smooth out the edges of such text by using some clever trickery, either by making hand-drawn adjustments after the graphics are produced or by utilising specially-prepared fonts known as ColorFonts, which are far more useful as they can be used directly by many different applications.Programs like *A2A* and *AntiA* calculate where the edges of each bitmapped letter are and then apply a series of intermediate colours along the edge not to *physically* smooth the edges, as you might think, but to give the *appearance* of being smooth. This is logical, if you think about it, because there is no way of making the pixels which constitute the letters any smaller (and hence make its edges smoother). By using a range of colours which graduate between the letter colour (for example white) and the background colour (say, black) it is possible to make the edges appear much smoother – particularly in high res interlace mode.



Antialiasing works by adding intermediary colours along the edges of a bitmap graphic.

POSTSCRIPT FONTS

Many PD libraries carry extensive collections of PostScript fonts which they are quite happy to charge you money for. Most of these fonts are shareware, so you should also seriously consider sending money to a font's author if you find it useful. Other good sources of Postscript fonts are bulletin boards or subscriber services such as CIX. If you have access to the Internet it is also possible to find many fonts available on various FTP sites, including Aminet mirrors

WARNING!

While A2A will work on most Amigas, lesser Amigas might not be able to use some of the ColorFonts produced because their file sizes can be HUGE! Anything over 100 points in 8 colour hi-res interlace resolution is likely to need well over 100K bytes of storage (and hence memory) to load and save. Typical values are often even higher, though of course this depends on the number of characters in the font, as well as the size and number of colours used. Nevertheless, don't expect to be able to use large, hi-res fonts on machines with little memory.

personal choice as it does on the Postscript font you've chosen to convert. Unfortunately the slim manual does very little to illuminate the use of filters, so trial and error is the order of the day. Not that this will cause much aggro, as the effect of any of the filters can be seen in the central display window. One parameter, called **Contrast**, affects the way in which the antialiasing filters work. Again, the manual only reveals that small point size conversions which use just two colours work best at 0 per cent contrast. A bit of fiddling soon helps to clear up any confusion, though there won't be too many occasions when you need to shift **Contrast** from its 50 per cent default setting.

A CHOICE OF COLOURS

A2A has a vast palette system which can impart wide flexibility to the ColorFont's output. Up to 32 colours can be used for the font (though only 8 are required for almost every purpose), but just two colours can be used if desired. Once the Postscript font has loaded, and the parameters and colour palette set, all that remains is to generate the bitmap and save it. This is very straightforward. Define the font's path and directory and a few optional settings to make the font **italic**, **bold** or **underlined** with programs that support such things, and then wait for the data to be converted and saved as a fully antialiased ColorFont.

WHAT
A2A – £50
WHO
P.M.S Systems/The Soft Alternative
WHERE
Alternative Image,
6 Lothair Road, Aylestone,
Leicester, LE2 7QB.
☎ 0533 440041.

SMALL PROBLEMS

A2A has problems producing clean-looking fonts at small point sizes, but to be fair it can't be easy making a font just a few pixels high look good. Since small fonts have few practical uses in most DTV and graphics work then this shortcoming isn't such a big deal. It would be nice to be able to save your favourite configurations for easy conversions.

REQUIREMENTS

Any Amiga with at least WB1.3 and 0.5Mb of memory. All the usual extras (more memory, hard drive, accelerated Amiga etc) will obviously help things run smoother and quicker, but they aren't strictly necessary. AS

CHECKOUT A2A

Documentation 65%
Whilst brief, the manual is rather overbearing and technical in its manner, and lacking in overall purpose and clarity. This is the program's biggest weak spot.

Ease Of Use 85%
Although the manual isn't particularly helpful, *A2A* is thankfully quite easy to use. Mind you, some experimentation will be in order to get the best from it.

Speed 95%
Of course a lot hinges on the speed of your Amiga but nevertheless *A2A* puts in a pretty good turn of speed, considering the work that it has to do.

Quality 100%
A2A produces excellent quality Amiga bitmapped fonts suitable for many applications.

Price 70%
Some may consider this too expensive. Others will be happy to pay for the convenience of being able to produce Amiga ColorFonts from the vast range of PostScript fonts now available.

Overall 83%
Without doubt, A2A is a program that serious Amiga graphics designers and DTV producers shouldn't be without. Its biggest disappointment is its manual, bringing the overall score down lower than it really ought to be.

3-Way encoding

Tested – Tricode, an RGB to video converter.

Need to convert Amiga RGB to video? Gary Whiteley examines ACS's *Tri-Code*, which does it three ways, unfortunately none of them particularly well. Amiga to Video encoders are rare. I'm not talking about genlocks that convert RGB to video as an aside here, but dedicated boxes that convert Amiga RGB to composite, YC or component video for recording direct to tape. And that's just what *Tri-Code* is – a dedicated encoder providing outputs suitable for all but the most exacting applications.

Whilst the Tri-Code's designers freely admit that their black box isn't up to broadcast spec, it can still supply component video outputs as well as both YC (for S-VHS and Video 8 use) and standard composite video outputs, all of which can be used simultaneously if necessary. Design-wise Tri-Code is quite straightforward. It's a shiny black metal box with an IEC (kettle plug) mains input at one end and RGB input and video outputs at the other. The RGB input is a nine-pin D connector, the YC output is a standard Mini-DIN and all the other connections are BNCs (for composite and YCrCb components). Frustratingly enough, Tri-Code has no RGB pass-through and, most disappointing of all, there is no way to externally sync the Tri-Code to an edit system, vision mixer or professional VCR, for example, meaning that its use is pretty much limited to direct-to-video applications.

IN OPERATION

I tested the *Tri-Code's* composite and YC outputs by recording them to a Panasonic 7750 VHS/SVHS VCR. Component output was taken to a Sony PVW 2800 Betacam VCR. I also checked *Tri-Code's* output on a waveform/vectorscope. In general the visual quality is acceptable, though the vectorscope revealed that the chroma gain is low compared to a standard test pattern and also confirmed my visual observation that there is some chroma jitter present. YC and composite outputs were OK, and it wasn't until I started using the component outputs that I started to become concerned. The first *Tri-Code* I tried produced quite poor results (difficult to lock to, and smeary quality, even when displayed direct to a Sony component monitor). A second one was even worse, exhibiting almost a quarter of an inch *drop shadow* effect on my test screen.

Unfortunately, no comments were forthcoming from ACS regarding this problem, so I can only tell you how it was – which wasn't good at all. I was unable to test the *Tri-Code* with a Harlequin graphics card, though the documentation mentions that the *Tri-Code* has been designed to interface with Harlequin. Finally a couple of observations: *Tri-Code* doesn't work with *OpalVision*. Shouldn't a fused mains plug be supplied with cables? If not, the instructions should at least recommend what rating of fuse to fit for best safety practice. AS

CHECKOUT ASC's TRICODE

Documentation 80%
Thin, but sufficient.

Ease Of Use 90%
Just plug in and go. Pity there's no RGB pass-through though, as this would make Amiga monitoring easier.

Quality 60%
Reasonable, at least for composite and YC, but is let down badly by the component output.

Price 50%
Almost £270 is a *lot* to pay for a small circuit board and power supply packaged in a fancy box.

Overall 60%
Lack of RGB pass-through and external synching let the unit down, and the price is too high. Most of the quality problems need addressing.

WHAT
TRI-CODE – £270.25
WHO
Amiga Centre Scotland
WHERE
Harlequin House, Walkerburn, Peebleeshire, Scotland, EH43 6AZ. ☎ 0896 87583.
Fax: 0896 87456.

Window Shopper

Graeme Sandiford introduces a new section of short reviews to keep you up to date with the extreme activity in the Amiga world.

AMINET CD-ROM

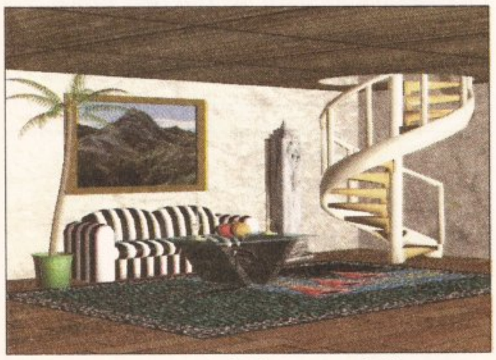
The Aminet area of the Internet worldwide computer network is one the best places to find new PD, software and hardware fixes and examples of creativity on the Amiga. The downside is that you will need access to a modem, and plenty of time and money to be able to enter this fantastic cyberspace wonderland.

Fortunately, this is no longer the case, as you can purchase the entire Aminet collection in the form of a *single* CD-ROM. The disc contains some of the best Amiga PD available. It includes pictures, business software, communications, disk tools, music modules. developer's tools as well as OS 2.0 and OS 3.0 specific programs and Workbench hacks. The CD is organized in exactly the same way as a floppy disk, with a simple directory structure.

Obviously, we can't list every file and program on the disc, but we will give you a useful overview of the disc's contents and brief descriptions of notable ones.

The first section that attracted my attention was 3D objects. There is good selection of models in *Imagine* format, although some of them have already been widely circulated. One object that stands out in particular is Carmen Rizzolo's **SpeakerFON**, a model of a modern telephone. The object is incredibly detailed and doesn't require any brushmaps, and therefore requires less memory to render. There is also the obligatory USS Enterprise object and near-ubiquitous model of an Amiga 3000 and keyboard.

In the pictures section you'll find the usual images of semi-clad women. However, there is also a good selection of anime and raytraced images. Among the best of the raytraced images are the ones produced in *Imagine* by Andrew Denton. The images, mainly of dragons, are stunning, with a great deal of detail and bright, colourful attributes. There are also some of the winning entries from an *Imagine* image contest. The anime pictures manage to cover a fair amount of the more popular manga and anime characters and series such as *Robotech* and *Ramna*.



Just one of the wonderful images and other goodies to be found on the Aminet CD-ROM.

The utilities directory contains a number of useful programs. There is a good selection of screen savers, such as *Superdark* and *Twilightzone*. There are also some CLI and directory tools to help keep your files organised. If you have a program that requires a copy of an obscure library to run, you'll probably find it in the libs section. The paranoid among you will, no doubt, head for encryption programs. There are also utilities for monitoring your CPU's activity, control your mouse, virus protection, ARexx scripts and loads of generally useful programs.

If, after exploring the disc, you feel the need to go on-line you'll find plenty of handy tools, comms programs and information in the comms directory. The programs range widely from off-line readers to on-line games.

There really is lot more on this disk, and I can wholeheartedly recommend this CD-ROM to anyone who has a CD-ROM drive or CDTV player. One of the things that you can't describe very well in print is the feeling of discovery you get as you sift through megabytes of data and find that indispensable program or piece of information.

Product: Aminet CD –ROM
Price: £19.99
Supplier: 17-Bit Software
Tel: (0924) 366982

Overall rating: 94%

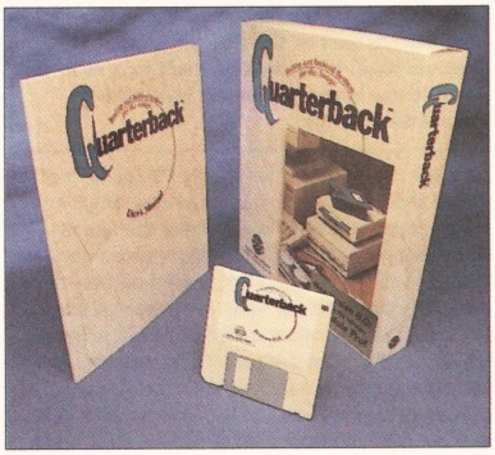
QUARTERBACK 6.0

Most of the activities you indulge in on your Amiga are time consuming. Programming and raytracing, for example, can take hours or even days. After investing some time and effort in your creations, it can be a soul-destroying experience to have the fruits of your labour wiped-out by a hardware failure or simple human error.

In order to limit the damaged done, it's prudent to make regular back-ups of your data. However, this is a time-consuming and extremely boring task. In order to make things easier, there are a number of backup programs available, among the most popular of these is *Quarterback*. We're taking a look at version 6.0, which includes *Schedule Pro*.

So, what's new in version 6.0? Well, for one thing it's faster. It will also take advantage of the features of more advanced backup devices such as hardware compression. A few new ARexx commands have been added, and existing commands extended.

The biggest addition to this package is the inclusion of *Schedule Pro* which turns *Quarterback* into a complete backup system. *Schedule Pro* works in conjunction with *Quarterback*, in order to perform timed-backups. Timed-backups take some



Quarterback's latest version has not received too great an upgrade, but it comes with Schedue Pro.

of the boredom out of backing up your hard drive, as you don't need to be there when the program does its work. For example, you could set the program to backup your drive in the early morning or at night. This can be on a daily, monthly or even hourly basis. One of the best features of the scheduler is that you can actually launch another program or ARexx script, at a specified time.

Refinements and additions have also been made to the backup operations themselves. You can now choose from either performing a complete or a selective backup. A complete backup is best used when you wish to backup an entire disk, as it simply reads the disk's catalogue, bypassing the file selection screen, and then enters the backup display. In selection mode you can actually specify the files you wish to backup before entering the backup display.

If you have a removable tape drive, you can now back up a disk that is larger than a single tape, as version 6.0 now supports multiple tapes – when a tape becomes full the program requests another tape. Another useful feature for tape drive owners, is the *SCSI Interrogator*. One of the annoying limitations of most tape drives is that they cannot display how much data can be fitted on a tape; the *SCSI Interrogator* cures this problem and gives you a better idea of the quantity of data you will be able to back up.

When it comes to restoring your data, you'll also find there are some new options. In version 5.0 you had the option of 'replacing existing files', now you have the choice of replacing later and/or earlier versions of a file. You can also set the file's date to that of the original, the backup or the current date. If you wish, you can select whether empty drawers will be restored or not.

Quarterback 6.0 has not received too great an upgrade, but the changes that have been made will give additional control of the backup process. It

also brings the program up to date with current hardware. Backing up your drive is a prudent precaution, and *Quarterback 6.0* does this quickly and well.

Product: Quaterback 6.0
Price: £74.95
Supplier: Meridian Software Dist
Tel: (081) 5433500

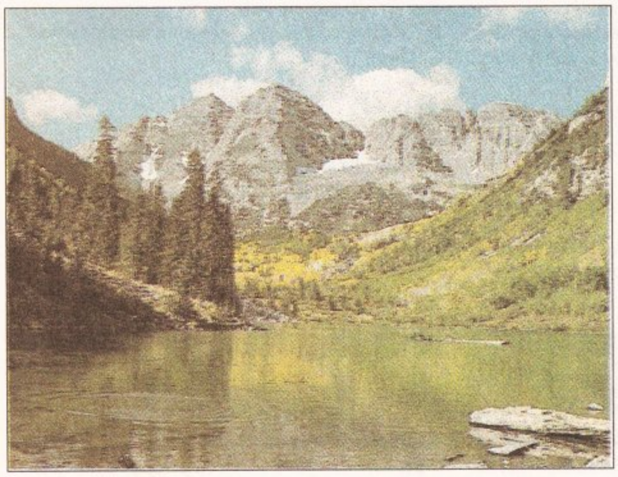
Overall rating: 82%

PERSONAL PAINT 4.0

The first incarnation of *Personal Paint* tried, unsuccessfully, to knock *Deluxe Paint* from its position as the Amiga's top affordable paint-package. Now, in its 4th revision, it's making another attempt at muscling *Deluxe Paint* out of the number one spot. Will it be successful, and, more importantly, will it be a match for the new kid on the block – *Brilliance* (reviewed in issue 32 – turn to page 74 if you missed this issue)?

After taking a look at version 4.0 you'd be hard pushed to distinguish it from its predecessors. The layout is the same as the first version – tool icons and palette on the left of the screen and pull-down menus. The major changes have all taken place internally.

The biggest addition to *Personal Paint's* arsenal is its re-targetable graphics support. In short, this means *Personal Paint* can now run alongside 24-bit graphics boards such as Retina and Picasso. Another major improvement is the program's use of Amiga DataTypes. You will have no doubt seen a number of Amiga DataTypes circulating in the PD world. These are extremely useful, as you can use them to give programs access to files of a format that they don't usually support (you'll need Workbench 3.0 for this). This is truly great for converting pictures across different computer



Here's a good example of Personal Paint 4.0's absolutely fabulous 24-bit printing facilities.

platforms, and provides support for the highly-compressed JPEG format.

One of *Personal Paint's* strong suits has been its manipulation of an image's palette. Now this has been extended to include 24-bit and HAM-8 images, its conversion from these graphics modes to 256-colour or less is extremely good. Its printed output is also very impressive. Version 4.0 supports 24-bit printing, and the results are extremely good, especially those produced using the new HP 550C printer driver. The program supports colour separation and gamma and colour correction, so you can fine-tune your printouts until what you see on screen is pretty much the same colour as your print out.

The program's range of filters, one of the best features of the original, has been increased. The new filters include **Rise** (similar to the **Emboss** effect, but in colour), **Randomise**, **Texture** (emulates a rough texture) and a selection of **Dithering Filters**. This version has an improved range of keyboard-short-cuts, covering almost all of the programs features.

As before, the program has a truly great selection of tools for altering a picture's colours. Not only can you edit each colour individually, as with most art packages, but you also can alter the whole picture's contrast, brightness, RGB values and colour intensity.

Despite this version's added power and versatility, there is still one area where *Deluxe Paint* and *Brilliance* remain unchalleged – animation. *Personal Paint* still has regrettably no animation facility or support for HAM-8 modes, and while it does have an edge with its filters, it would benefit from the addition of animation tools. On balance, it does appear that *Personal Paint* is still no real match for *Deluxe Paint* and *Brilliance.* However, Commodore have seen fit to include it in their new A1200 pack.

Product: Personal Paint 4.0
Price: £59.95
Supplier: Meridian Software Dist.
Tel: (081) 5433500

Overall rating: 75%

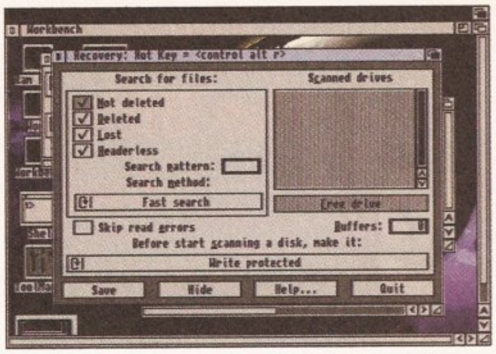
UPPER DISK TOOLS

Disks are a relatively stable way of storing data, but they are not infallible and you bound to lose some information or programs. The disks themselves, whether they are hard or floppy, can sometimes fail, and some times you might even mistakenly delete files yourself. As mentioned in the review of *Quarterback 6.0*, it's always a good idea to backup important files. But, sometimes you may have an accident in between backups. What you will need in this circumstance is a recovery tool.

This usually means forking out a substantial amount of money for a commercial package, or attempting to get to grips with an over-complicated PD program. As budget program, *Upper Disk Tools* falls between the two groups in terms of price (£19.95).

The tools comprise *Recovery*, a file recovery program, and *DSBackup*, a program that will backup information about the structure of a disk.

One of the things I like about *Recovery* is its method of working. It's very intuitive. It simply creates an Amiga device called **Recovery**, containing two directories. The first one, **Scanned**, is a list of drives that have been scanned. The second one, **Drives**, contains a directory icon for each device available (**DF0**, **DH0** and so on). When



Recovery in action – Upper Disk Tools searches for lost files when an accident has happened.

you double-click on an icon, its device will be scanned by *Recovery* for lost or deleted files. Once this scan has been completed two more directories are created, one each for deleted and lost files. You can then copy and move these recovered files as you would with any other. The truly good thing about this system is that it's just like using Workbench – all you have do is enter a number of directories and then copy the recovered files to the volume of your choosing.

There are also a number of options that can be toggled on and off. These include the type of files the program will search for, the search method, entering a search pattern and whether to make a disk write protected or unavailable for system use.

If you ask *Recovery* to search for files that have not been deleted, it will search for all the files on the disk and place them in a directory called **Files In Disk**. If you specify a search for deleted files these will appear in a directory called **Deleted Files**. You can also search for lost files whose parent directory cannot be found. There is also an option to look for headerless files – files whose header blocks can't be found.

If you choose to enter a search pattern, *Recovery* will only search the drive for files that match the search pattern. The program can write protect the disk before scanning it in order to stop other programs writing to it while it is being scanned.

DSBackup can be used to back up information about the structure of the disks. This information can be stored as either a mountlist or an IFF RDB (Rigid Disk Block). Storing this information can be useful if your disks become corrupted. Once again the program's operation is simple – after running *DSBackup* you are presented with a list of devices. You can then subsequently choose to examine and save the device's information or restore it. What could be easier?

This suite of programs is extremely good for the price, and is very easy to use. However, its features are not as extensive as *Quarterback Tools*. It is still a product I would recommend to a beginner who is looking for a more or less transparent system for restoring damaged or accidentally deleted files.

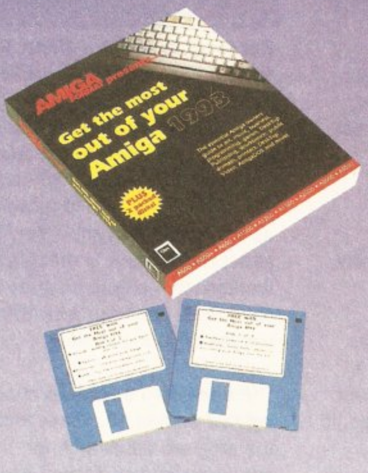
Product: Upper Disk Tools
Price: £19.95
Supplier: Wheelbarrow Software
Address: Broad Oak, Two Tree Hill, Henley-on-Thames, Oxfordshire, RG9 1RQ.

Overall rating: 81% AS

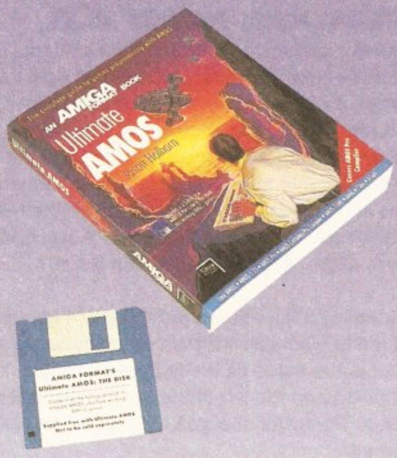
Future Leisure Books

From the makers of the UK's top 'serious' Amiga magazine AMIGA SHOPPER

Books to help you get the most out of your machine







Size 185mm (W) x 223mm (H) **Pages** 320 **Disks** 2 **Price** £19.95 **ISBN** 1 898275 00 9 **Softback**

Get the Most out of your Amiga 1993

Your guide every Amiga application, from desktop video to programming, from games to music, explaining the jargon, the techniques and the best software and hardware to buy. Plus…

- The Amiga's history
- Getting to grips with Workbench.
- Advice on printers, hard disks, RAM, floppy disk drives and accelerators
- AmigaDOS command reference
- 2 disks of top Amiga utilities

Save £10!
This book is also available for a reduced price of £9.95 if you buy it in conjunction with certain other titles. See the relevant advertisements for ordering details.

☐ **I would like to order __ copy/copies of 'Get the Most out of your Amiga 1993' at £19.95 each. (Order no. FLB009A)**

Size 100mm (W) x 190mm (H) **Pages** 160 **Disks** None **Price** £9.95 **ISBN** 1 898275 01 7 **Wire-bound**

Pocket Workbench & AmigaDOS Reference

How do you copy files? How do you format floppy disks? How do you move things from one folder to another? If you've just got your Amiga, Workbench and AmigaDOS can be confusing – unless you've got expert help on hand.

- Help for beginners
- Workbench menus
- Workbench preferences
- Tools, Utilities and commodities
- Full AmigaDOS 2 & 3 command reference, listing all commands in alphabetical order and quoting function, syntax and examples

★ Contains some material also published in 'Get the Most out of your Amiga 1993.'

☐ **I would like to order __ copy/copies of the 'Pocket Workbench & AmigaDOS Ref.' at £9.95 each. (Order no. FLB017A)**

Size 185mm (W) x 223mm (H) **Pages** 400 **Disks** 1 **Price** £19.95 **ISBN** 1 898275 02 5 **Softback**

Ultimate AMOS

Explore the full potential of AMOS with easy-to-understand descriptions, diagrams and dozens of example AMOS routines.

- Programming principles
- Screens and scrolling
- Controlling sprites and 'bobs'
- Using AMAL
- Sound and music
- Coding specific game types
- Includes a disk containing all the code printed in the book!

☐ **I would like to order __ copy/copies of 'Ultimate AMOS' at £19.95 each. (Order no. FLB025A)**

☐ **At the same time I would like to order __ copy/copies of 'Get the Most out of your Amiga 1993' at the special price of £9.95 each. (Order no. FLB009A)**

How to order direct from us

☆ These books are also available in all good bookshops ☆

1 Choose the book/s you want.

2 Tick the appropriate boxes

3 Put your name here ....

4 And your address here ....

....

..............................Postcode ....

5 And sign here ....

6 Tick your method of payment (Please make all cheques payable to Future Publishing Ltd.)

☐ Visa ☐ Access ☐ Cheque ☐ P/O

7 If paying by card, quote your card number…

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

8 …and its expiry date _ _ _ _

9 Tick this box if you do not wish to receive direct mail from other companies ☐

10 Now send this whole page (or a photocopy) and your payment/card details to the address printed below.

EEC Customers registered for VAT must quote their registration number when ordering:

....

You will not need a stamp when you post your order and postage and packing are free. There are no extra costs. Please allow 28 days for delivery.

Future Leisure Books, Future Publishing Ltd, Freepost (BS4900), Somerton, Somerset TA11 6BR

Talking Shop

There's £25 on offer for the best letter each month. Send your opinions to: "Talking Shop", Amiga Shopper, 30 Monmouth Street, Bath, Avon BA1 2BW.

WHY NOT COMPATIBILITY?

£25 WINNER

I write to express some thoughts on how the Amiga could begin to make in-roads into the commercial computing arena. I believe that it is important that the younger Amiga users who have bought the machine primarily for games are encouraged to use their Amigas for school or college work. For this to happen, high quality word processors, databases and spreadsheet packages must be available to prevent users abandoning the Amiga and turning to the PC to do their homework.

As all schools and colleges now use PCs for students' coursework, it would be advantageous for Amiga packages to offer compatibility (via a file transfer utility) with their PC counterparts – eg Wordworth – WordPerfect/WordStar file transfer. This would enable students to do their evening work on their Amigas, transfer their files to the relevant PC format and take their disks to college the following day to be printed on the college's laser printer. Therefore, there would be little point in abandoning the Amiga to buy a PC.

It concerns me greatly – the number of students, with whom I am friendly, who have sold their A500s over the past few years and bought 386/486 PCs instead. The reason I make this point is because today's students are tomorrow's systems managers, making decisions such as: "Should I choose a PC or Amiga to provide the visuals for that important presentation to the Board?" I believe that someone who has previously used an Amiga would choose the Amiga option every time.



Would you buy a magazine from this man? Not with that sort of hair-style, that's for sure.

By the way, is your editor the same Cliff Ramshaw who wrote the excellent fantasy short story *The Journey*, published in *Fear* magazine? If so, did he ever finish his "forces of love and magic" novel? (Cliff – nice haircut in that picture of you in Fear, trendy!)

JA Owen
Holyhead, Gwynedd

I think your points about file compatibility are very relevant. What does everyone else think?

Yes, that was my story in *Fear*. I did finish the novel, but sadly the literary world wasn't quite ready for it. Yet.

A DOUBLE MINUS?

I recently purchased from yourselves the book *Complete Amiga C*. I have found it quite easy to understand, and have been steadily working my way through it. However, when I got to pages 78-80, which talked about decrementing variables and the decrementation sign '-' I found the compiled programs did not work as expected.

I made reference to another book I have on the subject of Ansi C and discovered that the sign should be a double minus sign, ie '--', for either post or pre-decrementing a variables. This must mean that the book has a misprint which is most definitely misleading.

On reflection am I correct in thinking that the use of one minus sign in this way will effect the variable name itself in some way? I am sure that this is explained later in the book anyway.

I am a subscriber to *Amiga Shopper* and in my humble opinion it is the best Amiga mag. Incidentally, my wife has a newsagent so I get to peek at most of the others.

Stephen Horsfall
Rossendale, Lancs

Glad you're finding the book easy to follow. As it goes there isn't a misprint in the book – all of the listings were tested then transferred directly on to the page, thanks to the wonders of desktop publishing – it's just that the font used for printing the listings is a little ambiguous on this particular point. There are two minus signs there; they've just run together to look like one. Sorry about that.

So far as I'm aware, there's no use at all for following a variable name with a single minus sign – preceding a variable with a minus sign of course instructs the machine to take the negative of its value.

Quick plug time. If you want to learn how to program on the Amiga, why not buy my book and make me rich? It's great. You can find details of how to get it, along with a complete compiler package and a full set of Commodore include files, all for £24.95, by turning to page 84.

THIS BOOK IS BRILLIANT

I've been programming in AMOS for about a year and a half now, and after much frustration concerning the lack of power and proper Intuition support, I decided to have a go with another language that is more powerful and that supports Intuition directly.

I looked at the available options, including Blitz BASIC, C and Assembly language. Blitz, despite being very fast yet reasonably simple to code, was discarded on similar grounds to that of AMOS – no matter how fast it is, it is still BASIC! Assembly language is, to be honest, completely out of my league, which left me with C. Then I spotted the advert in *Amiga Shopper* for *Complete Amiga C*. It came at exactly the right time.

I had decided that C it was. Wanting to do things right, I bought the Commodore 3.1 Includes, Inovatronics' text editor Edge, a book on Intuition programming by Mike Nelson and, eventually, I made the best move ever – I bought *Complete Amiga C*. And can I say up front that this book is brilliant? Congratulations to everyone who was involved in the production of this excellent publication. The book is everything I was hoping it would be and more.

It has opened up a whole new world of possibilities for me, and I say it would for anyone else who buys it. I would recommend it to anyone just starting to program in C.

Matthew Gorner
Radford, Coventry

Gosh, thanks. That's made my day.

RELIGIOUS SUBSCRIBERS

Please explain to me why readers like myself, who have religiously subscribed to your mag since the original sample in *Amiga Format*, have never had anything in return – except for, I admit, a quality mag. Yet newcomers are granted a free binder as an incentive to subscribe. So where the hell's mine and every other regular subscribers'? Is it not us who gave you your first guaranteed income? So much for loyalty.

Secondly, try to pay more attention to spines on the mag. On issue 16, the little ditti said: "It's so tiptoptabulous" and on issue 31 it said: "It's top-tip-tabulous, mates!" Original, huh?

While we're on the subject... issue 8 says: "The

HOW TO WRITE THE RIGHT THING!

Talking Shop is the liveliest, most opinionated and well-informed Amiga letters section there is. If a subject's worth debating, it's debated here. To keep it that way, here's a quick guide to let you know which subjects we're particularly interested in hearing about, and which should have been dropped along with Workbench 1.2:

CRUCIAL COMMUNICATIONS

The Super Amiga
Wordworth 3
Multimedia
Weird and wonderful uses of my Amiga
Misfortunes with my Amiga
Article ideas
Cliff's *Complete Amiga C*
(go to page 84 to order your copy now!)

NOISOME NOTES

Digital Signal Processors
My machine's better than yours
Games
Microsoft *Word*
AAA chip set
Cracking groups
Cliff's novel

magazine that cuts the c...over disk." Nice touch, but we now have the c...over disk. No complaints, but it does show inconsistencies.

Please keep up the tip-top– er top-tip– er tab-tip-topulous work.

David Brandwood
Oldham, Lancs

Oh come on! You wouldn't complain if, having bought a car some months ago, you discovered that the same model was now being sold with a free sun roof and tape player, would you? The price of a product and any additional incentives thrown in to try to encourage buying are bound to change with time.

You're right about the spine lines – I thought that issue 31 line came to mind rather too quickly.

As you've no doubt noticed, we have once again cut the c...over disk.

OPTION FOR THE FUTURE

Regarding Nathan White's letter in issue 35 (page 85 – "Ray Traced Covers", in which Nathan asked if we'd be using Amigas and *PageStream 3* to produce the mag) I admit that I was rather surprised at what was said in his last question. Despite the Amiga having the superior operating system (with multitasking and so on) I was unwillingly going to purchase an Apple Macintosh, mainly because my interest is in desktop publishing, and therefore *Quark XPress*. But since then I have been wondering what this new package, *PageStream 3*, could offer me.

I thought I'd write to Soft-Logik and ask for some information regarding *PageStream 3*. When I received the features list, I came to the



Soft-Logik's PageStream 3 – will it really be the top DTP package on any system?

conclusion that it seemed as the Apple Macintosh I was once considering had swept out of my mind completely, as *PageStream* is a far more capable piece of software than what the Mac has to offer. My thanks go out to Soft-Logik for supporting the Amiga so well, but I was also very surprised to hear what you had to say in response to Nathan's letter: "No, we will not use Amigas to create the magazine. All of Future's magazines are created on Macs, linked together in a huge network..." I bet you enjoyed writing all of that, didn't you?

But seriously, wouldn't you like your magazine to be created in the ultra-swish amazing new interface that *PageStream 3* has to offer. After all, you are an Amiga mag and one of the features (unlimited undo/redo) among the hundreds more available would really help in the development of the mag.

Inevitably you're going to say that Future Publishing will only allow you to use Macs, but if I was you I would personally go to the manager and complain, or at least put across the point that *PageStream 3* is a better package than *Quark XPRess*. Imagine everyone in the building laying out their magazines with *PageStream*. I do respect the fact that it might be hard getting away from that one button mouse, or using the superior Workbench operating system in favour of System 7 on the Mac, but please consider this platform as an option for the future.

David Simpson
Walsall, Staffs

Well, our changing over to an Amiga-based DTP system involves more than Future Publishing *allowing* us to do so. We currently use well in excess of 100 high-powered Macs. The cost of replacing all of these with similarly featured Amigas would be horrendous. And, remember that though Soft-Logik claim that *PageStream 3* will be better than *XPress*, whether or not it will be still remains to be seen. You can be sure we'll be carrying the definitive review as soon as it's available.

ASSEMBLER INSTRUCTIONS

I have desperately been trying to program anything in MC680x0 assembler, and apart from the small sections in your magazine, nothing works. This is not due to my machine or any of my equipment: it is because I cannot program.

I was interested in the 68K guide that you started to publish, but the programs you printed were not really useful, and before I started to learn anything the section in your magazine finished. I think it would be very beneficial to new programmers if you did not only have sections in your magazine for C and AMOS, but also for 68K as it is the most powerful language available for the Amiga, and lots of people are trying to program in it.

Here are the following areas of assembler I would like to see covered:

- **Calling up graphics and music.**
- **Scrolling text and blitter dots.**
- **Square shaped things that move around.**
- **Access to control ports.**

It would also be interesting if you would print a section on DIY. I would like to be able to build my own I/O port.

As your magazine is the only magazine to cover comms (except for a few lines in a strange magazine I don't know the name of) I would like to see the sections becoming more regular and larger, instead of smaller and less regular, as they have been doing recently.

Apart from that the magazine is great, and the only "serious" magazine on the market. You do a good job of filling it.

Andy McCall
Poulton-Le-Fylde, Blackpool

I have definite plans to run some articles on assembly language programming. What I need to know is how many of you would be interested. Why not write and tell me? While you're at it, please take the time to fill out the survey form on page 55 – the more responses we get, the more we can tailor the contents of the magazine to suit you.

I'm not so sure about the usefulness of a hardware DIY project, but if enough of you write in, I'll happily change my mind.

On the subject of comms, too, I'd be grateful for your feedback – what sort of subjects should we be covering? How many of you are comms beginners, and how many are hardened experts? Let me know!

UNIVERSAL OPERATING SYSTEM

Having read DW Joslin's letter in issue 35 (page 85 – "Might Have Been", with Mr Joslin commenting that the Amiga will retain its image as a games machine unless the likes of Microsoft develop for it) I finally decided to write. There are many products on the market that we would like to see on the Amiga, but I am afraid that the amount of work needed to transfer programs to the Amiga would not be worth the effort of many software companies. However, had their programming policies been different, had they concentrated on producing portable code in the first place, built on various machine-specific modules, the task cold be easily achieved and cheaply.

Unfortunately I fear that in the future the hardware will become increasingly unimportant and that computers will all become one grey mass with a universal operating system. Hence the Amiga and its users may eventually get the programs they want, but lose much of what they love about the machine.

N.P. Davies
Karlsdorf, Germany

I guess we're seeing a move in this direction with

BE LEFT BEHIND – TO UPGRADE OR NOT?

In issue 35 you asked me what I think (in response to M Ford's letter, Be Left Behind on page 85, in which he complained about our urging users to upgrade, and proposed splitting the magazine into two, one for 16-bit and one for 32-bit owners).

Whilst I can see his point, I think Mr Ford owns a "new" Amiga 600, 'cause if it is as old as my 1.3 A500 it must be a relic.

The only reason I bought the first edition of *Amiga Shopper* is the same reason that I still buy every one: it's the only mag with no games, loads of info, and it might teach me about my Amiga. Nevertheless it might be a good idea to split the mag, or at least keep to the speed limit.

DK Lorch
Bury St. Edmunds, Suffolk

And on the other hand...

The point made by M Ford in issue 35 about Amiga Shopper no longer catering for readers with older Amigas is increasingly becoming true.

I own an A500 (Workbench 1.3), which is all I want. I don't expect I'll be changing to an A1200 or higher Workbench (no matter how guilty *Amiga Shopper* makes me feel). In recent issues I've noticed that several of your writers have wasted no time in consigning the A500 to the trash can. Okay, maybe it isn't as good as an A1200, but that isn't the point, is it? Is your A1200-owning readership really so large that it enables you to alienate the owners of older Amigas?

An ever-increasing amount of *Amiga Shopper* content is being devoted exclusively to A1200 owners, Workbench 2+, etc. I appreciate your position (dilemma?), but it's no good to me as an A500 owner.

Sorry guys, but you've got it wrong. Please give us back our Amiga 500 magazine. Finally, how long do you reckon it will be before a disappointed A1200 owner writes this letter?

Paul Morris
South Wirral, Cheshire

Firstly, let me say that *Amiga Shopper* is committed to helping Amiga owners get the best from their machines, no matter which model they own. The fact that there are many different configurations in use, and that they are not entirely compatible, does cause problems so far as we are concerned (not to mention the far greater hassle it causes developers), and it may be that we have got the emphasis wrong in the past.

I will say, though, that many developers are now releasing products that only work with Workbench 2 or higher – this in itself is going to cause, to some degree, a marginalisation of A500 owners.

I'll recommend upgrading till I'm blue in the face, because I genuinely believe that the later Workbenches are far better than 1.3. But don't worry, we don't intend to leave anyone behind.

the announcement of Commodore's AAA-based Super Amiga, which is to be Windows NT compatible. Cross-platform compatibility has got to be a good thing – Apple and IBM are working towards the same goal – but I agree, it would be sad to lose those things peculiar to the Amiga that make it so special to us.

AREXX ANGST

I've been following your ARexx tutorials for some time now, but to be honest, I'm lost. In my opinion the series has progressed too far too quickly, and should have concentrated more on tips for beginners? Will you consider a back to basics approach to the column?

Annie Hall
Wingate, County Durham

The fate of the ARexx column is actually in the balance at the moment. How many of you feel it is relevant? And if you do, what sort of subjects should it be covering? Should we deal with basic programming techniques, or should we be looking at writing scripts for high-end programs like *ADPro*?

THE LIMITATIONS OF MEMORY

The cover of the February issue did a terrific job of driving me straight to the *Word For Workbench*? article, which I began to read with some excitement. After I realised that the most important part of the article's title was the question mark, it took quite a while for my fit of annoyance to subside enough for me to carry on reading. I must admit I am quite glad I did, for what started out as a dreadful passage which would not have been out of place in the Sunday Sport, metamorphosed into a most interesting read.

I refer, of course, to the interview with Mr Pleasance, who waxed loquaciously on about how Commodore were to create new DOS-compatible Amigas with RISC cores, running Windows et al.

Here I foresee a problem. Assuming that a new high-end AAA Amiga appears in the next year or so, along the lines suggested, and assuming once again that perhaps it is supported by the likes of Quark, Adobe and Microsoft, the question of cost rears its ugly head. In a machine which would, I suppose, cost at least as much as a 4000/030 (a conservative estimate?), plus the cost of the enormous amounts of RAM that *Photoshop*, for example, needs, how many could afford such a machine for leisure purposes? Even a cut-down *home-use* version of the new chipset would be wasted to the point of uselessness without huge memory resources.

Few of your readers will have used a Mac, and fewer still *Photoshop*. I can tell them now that a "bare bones" Quadra 800 (68040/24Mb RAM) struggles will print all but the smallest of 24-bit scanned images. An acquaintance of mind would shudder at the thought of running any of his bureau's Macs with less than 100Mb on board.

You would say, of course, that the professional user's needs are not those of the enthusiast's, but RAM is blood to any system that needs to produce graphics; but at today's prices of £150 for 4Mb, or even tomorrow's prices of half that, furnishing the Amiga's memory requirements will be a very costly experience indeed, pushing the machine beyond the reach of the people who pay Mr Pleasance's salary at the moment – you and I.

MJ Elliot
Lowestoft, Suffolk

The Sunday Sport? Well, okay, the cover line was intended to generate a bit of a stir, but surely it wasn't as bad as all that.

I take your point about memory requirements. The problem, though, is one that will plague all machines, not just the projected Amiga. If home users can't afford that sort of set-up, then they'll have to be happy with less capable systems. It's still possible to produce high resolution, many-coloured displays without too much memory. High quality 24-bit colour scans is something that most home users will not need to deal with.

DAISY-DONGLING

Because of the death of many Amiga developers, due to the piracy of creative software that developers have invested hundreds and thousands of hours getting to market, we are seeing more and more dongle protection devices. I am not one of those individuals who stands against protecting creative work, but am a bit chagrined by the inability to multitask more than one program that is also dongle protected (you shouldn't remove *any* device that is plugged into your system while it is still on!).

One solution is to chain the dongles when they offer an open end (like the *SCALA* device). This means, however, that you cannot chain dongles together that have closed ends (most of them).

Here is a call to an Amiga developer who would make many users happy while raking in some gold as well. Why not develop a multi-socketed device that fits in the second joyport with perhaps a switchable way of addressing half a dozen or so dongles? This would allow multi-tasking protected wares in a simple fashion. Is anyone listening?

R. Shamms Mortier
Vermont, USA

What an excellent idea! You'll all be seeing many more examples of Shamms' incisive thinking in the future, when he comes on board as a regular contributor. Check out his piece on page 58. AS

MAIL ORDER - THE GOOD AND THE BAD

***Amiga Shopper* is conducting a mail order poll. This is your chance to commend the mail order company with which, for whatever reason – best customer service, best deal, best advice – you have had the easiest, most hassle free dealings. We'd also like to hear from you if there's a particular company that has provided you with what you deem unsatisfactory service. We'll be printing the results in the next issue, when you can see just who's the top of the heap, and who's best avoided. So rush those nominations in to:**

Mail Order Poll
Amiga Shopper
Future Publishing
30 Monmouth St.
Bath BA1 2DL

Reader Ads

...or your chance to reach 50,000 fellow Amiga owners for FREE!

FOR SALE

A4000/030, 2+4 Mb Ram. Western Digital 250 Mb hard drive. Phillips colour monitor. Power high density external drive. 300 utilities & games. Still under guarantee. Boxed as new. £1400. ☎ 041 8870536 Neil

Star LC24200 colour printer, £170. Turbo print £22. Audio master sound sampler £15. Cartoon Classics software £15. A500 modul-ator £20. Music-x 1.1 £15. Transwrite £8. Magazines. Call Chris ☎ 0242 678681.

Printer: Panasonic KXP-2133. 24 Pin colour. Boxed as new. unused colour kit. With lead. Sell for £110. North London. ☎ 081 951 3342 Mr Patel

Amiga 500+ 1 Mb ram. Boxed. Only 6 months old, still under guarantee. Games, manuals, joystick, everything included £150 ono. ☎ Tony 0533 706664 (Leics). Please, leave a message if I'm out.

A500 3 Mb. A590HD extra floppy. C1901 monitor, workstation, hand scanner, WB1,3, Kcs emulator, Dos 5.0, manuals, lots of software, games, extras. All good condition. £475 the lot. Stewart ☎ 0564 794268

A500 accessories. SSL A5000 4 Mb accelerator £160. Power computing 64 greyshade scanner £50. 4 Mb expansion board £70. Dual disk drive with antivirus £70. Ppage 4.0 unused £70. ☎ 081 568 4800

Amiga 1500. WB1.3, monitor, 40 Mb hard drive, Flicker fixer, Scanner, Genlock plus software £450. ☎ 021 554 8327 after 6pm.

Microbotics M1230xa 50 Mhz 68030 accelerator. Including 4 Mb ram and MMU. Suitable for Amiga 1200. £360. Craig ☎ 061 273 3464

Video for Amiga Rocgen Genlock 300c £75. Genlcok splitter lead £10. Video image enhancer £50. All boxed with instructions. ☎ 0983 753534

Games/Utilities. All boxed original. Over 150 titles. Must sell. £2/8 each plus printer, drive, etc. Very cheap. SAE please to: Mr G Rogers, 24 Northview, Swanley, Kent BR8 7BQ

A3000 18 Mb ram, 425 Mb H/D, CBM 1960 multisync, HP510 desk-jet, Opalvision, GVP clock, Imagine 2, Image FX, Real 3D pro, XCAD 3000, Dpaint IV, Mini-office, bits/bobs, all disks/manuals excellent condition. Offers around £3000. Mark ☎ 041 357 4843 evenings

Power 1204 accelerator board 4 Mb memory, FPU + clock. Perfect condition £160. Also Scala Pro V1.12 £55. Vista Pro 3 £35. Both boxed with manuals plus few Karafonts cheap. ☎ 021 745 9433 anytime

Amiga B2000, twin floppies, 3 Mb ram, 42 Mb SCSI HD, Philips 8833 II monitor. WB 2.0. Bags of games and PD for only £400. Paul ☎ 081 671 2643 after 8 pm

Genuine Amiga software and CD collection for sale. Cheap. Send £1 for list. M Williams, 6 Glasfryn, Raikes Lane, Mold, Clwyd CH7 6LR

Southend's largest Amiga BBS plus PC area! And a SYSOP that answers the pager, on-line 24hrs weekends, 7pm–7am weekdays, with great download ratios. Call today Den's Den BBS 0702 464818.

4 Mb 32-bit Ram Board with 50 Mhz 68882 FPU and battery backed clock. For use with Amiga 1200. Brand new, unused £280 ono. James ☎ 081 778 7281 evenings

Amiga 1200, 60 Mb internal hard disk, including warranty, 6 Mb ram, FPU, colour monitor, including warranty, external floppy drive, serious and games software, offers around £800. ☎ 0246 221750 only after 6pm

Amiga 4000/040 340 Mb disk, 10 Mb ram, CBM 1960 monitor, four months old, IV24 VIU-CT, R3DV2, Simpatica, Morph+, ADPro 2, DPIV AGA, Broadcast Titler 2, VU fonts, all literature, £3,500. Robin ☎ 071 622 9966 x222 9-5pm

A1200 85 Mb HD, Ink-jet printer, hand scanner, Philips monitor, £1000 worth of original software, 100 mags, excellent condition, sell for £950 ono. Ian ☎ 0257 426125

Emplant Deluxe macintosh card and vortex golden gate 386 card. Open to offers on either/both. Ash Hogg ☎ 0926 814132 (daytime) 0926 422146 (evenings)

Power Computing PC1204 RAM and Co-pro board for A1200. 4Meg 32-bit RAM, 68882 FPU running at 33Mhz. Doubles the speed of your A1200. Costs £280, accepts £200. Unwanted gift. New. Call Daniel ☎ 0706 227767.

A4000/030 2+4 Mb RAM. Western Digital 250Mb Hard Drive. Philips colour monitor. Power high density external drive. 300 utilities and games. Still under guarantee. Boxed as new. Sensible offers ☎ 041 8870536.

Amiga 500+. Original software and manuals, GVP 52 Mb HD, KCS power board, Philips CM8833-II monitor. Large selection of games and utilities. Sell separately or packaged £650 o.n.o. Andrew ☎ 0656 773947.

Workbench 2.04 kit and ROM sharer. Includes disks, manuals and chip. £55. Peter Ecclestone, 4 Central Street, Mount Pleasant, Mow coP, S-O-T, ST7 4NZ. Games also. Write with S.A.E. for list.

Amiga 1200, 80 Mb hard disk, 1940 AGA monitor word processors, paint and programming packages. Games including Frontier. Boxed as new. 6 months warranty. Loads of mags. £720. ☎ 0684 833 361.

170 Mb IDE Hard Drive suitable for A600/A1200. Pre-loaded with Workbench 3.0. Only a few weeks old. £195. ☎ 0903 244402.

Amiga A1200, 80Mb Hard Drive, external drive 4Mb Hawk fast RAM workstation. £490. ☎ 0582 865070.

GVP A530, 80Mb HD, 1Mb 32BIT RAM, 40 Mhz 68030EC processor, boxed £390. KCS PC Emulator for A500+ with MSDOS vers and manuals, £75. ☎ 021 3314027 (evenings).

Citizen Swift printer 9/9X. Boxed with manual and colour kit. As new, £110. Call 0484 656486 or write to 170 Lowergate Paddock, Wedersfield, West Yorkshire.

A1200 HD, 85Mb. Full warranty, £400. Brilliance £95. Both new, boxed and unused. ☎ 0273 493659.

68882 50 Mhz maths co-pro (PGA). Suitable for most 68030 accelerator cards. The device has been tested but not used. Supplied in original anti static package. Bargain £80. ☎ 0703 862898.

1Mb A500, hardly used original, boxed, complete, plus games, joy stick, manuals £195. Call Ted ☎ 0742 874827.

CD32 with Oscar and Diggers £200 (o.n.o.). As new. Write to Matthew Pickersgill, 27 Crescent Rd., Dukinfield, Cheshire, SK16 4ET.

Amiga 2000, 030, 40Mhz FPU, 8Mb FAST, 2Mb Chip, 120Mb Hard Drive, loads of software, ideal for desk top video/publishing, £900. Editman Editor for panasonic VCRs, £300. ☎ 0773 857204.

CBM 1940 Dual Sync monitor. Less than 4 months old. Boxed as new £180 o.n.o. Buyer collects. ☎ 0242 241769.

Microbotics MBX1200 for A1200. 14 Mhz 68881 FPU with 2Mb 32-bit RAM. Boxed as new. Only 6 months old. Call Sean ☎ 061 4804446 (after 6pm).

AMAX II Plus. MAC Emulator. Software, manual and MAC ROMs £200. ☎ 0532 680787.

Drum machine, Roland R5. 68 different 16-bit drum and bass sounds. Hardly used. Ideal for MIDI Musician. Boxed with manual and leads, £200. Call Darren ☎ 0689 856470.

Clarity 16, 16BIT sampler, edit, effects, loop, etc. Single track sequencer, £75. Megalosound 8-BIT direct to disk sampler plus audiomaster IV software £50. Call Darren ☎ 0689 856470.

M1230XA 40 Mhz 68030 accelerator. 4Mb RAM. For A1200, £320. Also Amitek 4Mb 16-bit RAM card, £125. Call Steve ☎ 0388 605767 (after 5.30pm).

Amiga A4000 040 10Mb RAM, 120Mb Hard Drive. All as new – own the ultra fast superb Amiga flagship machine, £1500. Call Nick ☎ 0242 525461.

Amiga 1200 and Philips 8833 monitor. Boxed with manuals. Perfect condition. Games and software available. All originals. Genuine reason for sale, £350. ☎ 0268 771409.

Amiga Buzz BBS: Amiga only system. Hundreds of files on-line. No upload/download ratio. Great SYSOP... Call 0924 494690 (betweeen 9pm to 5am, 7 days a week).

Amiga 1200 64Mb Hard Drive. Virtually brand new. Boxed, guaranteed. Purchased from Silica. Simply not used by middle-aged owner! Includes games, serious, GFA, Basic etc. Offers ☎ 0745 571328.

PCMCIA card for A1200/600 2Mb, £65. AMOS manual, £6.50. 10 out of 10 maths, english (brand new – unwanted prize), £7.50/each. DPaint3, unopened, £10. 40 Mb IDE drive, £110. ☎ 0273 493659.

A1200 2Mb, 1940 Multisync, Canon BJ10SX printer, 85Mb HDD. Less than six months old. Complete with Frontier and Syndicate. Excellent condition. Buyer collects, £825 o.n.o. ☎ 0242 221577.

SSL A5000 accelerator for A500; 68020 at 16 Mhz, FPU at 20 Mhz and 4Mb 32-bit RAM. In perfect working order, £200 o.n.o. Call Jason ☎ 0252 722811.

GVP A530. 80Mb Hard Drive, 40 Mhz 68030 accelerator, 1Mb 32-bit RAM. 6 months guarantee. Quick sale £330. Also A500 WB1.3 + 2.0 (ROM sharer), 1Mb chip RAM £130. ☎ 081 688 6202.

WANTED

The Shining BBS. Amiga only system. Loads of files, messages and anything else you could possibly want! All speeds to 14400. Open all cheap rate times! Call it now! CUL8R. ☎ 0730 895789

Amiga Buzz BBS: Amiga only system, hundreds of files online. No upload/download ratio. Great Sysop. ☎ 0924 494690 between 9pm and 5am 7 days a week

Memory expansion board for a dataflyer 500 Hard Drive populated or unpopulated. Call Kenneth ☎ 0274 816613 (evenings).

Sell your used hardware and software in *Amiga Shopper* for FREE!

The editor reserves the right to refuse or amend ads. We accept no responsibility for typographical errors or losses arising from the use of this service. Trade ads will not be accepted, including anyone advertising the sale of PD software.

Issue 37

Name..........

Address (not for publication) ....

....

....

Postcode.......... Date ....

Tel..........

Tick one box to show required section heading

For sale .....❑

Wanted .....❑

Personal ....❑

Fanzines ....❑

Use one space for each word. Only the words in this section will be printed.

Return to: Reader Ads, *Amiga Shopper*, 30 Monmouth Street, Bath, Avon BA1 2BW.

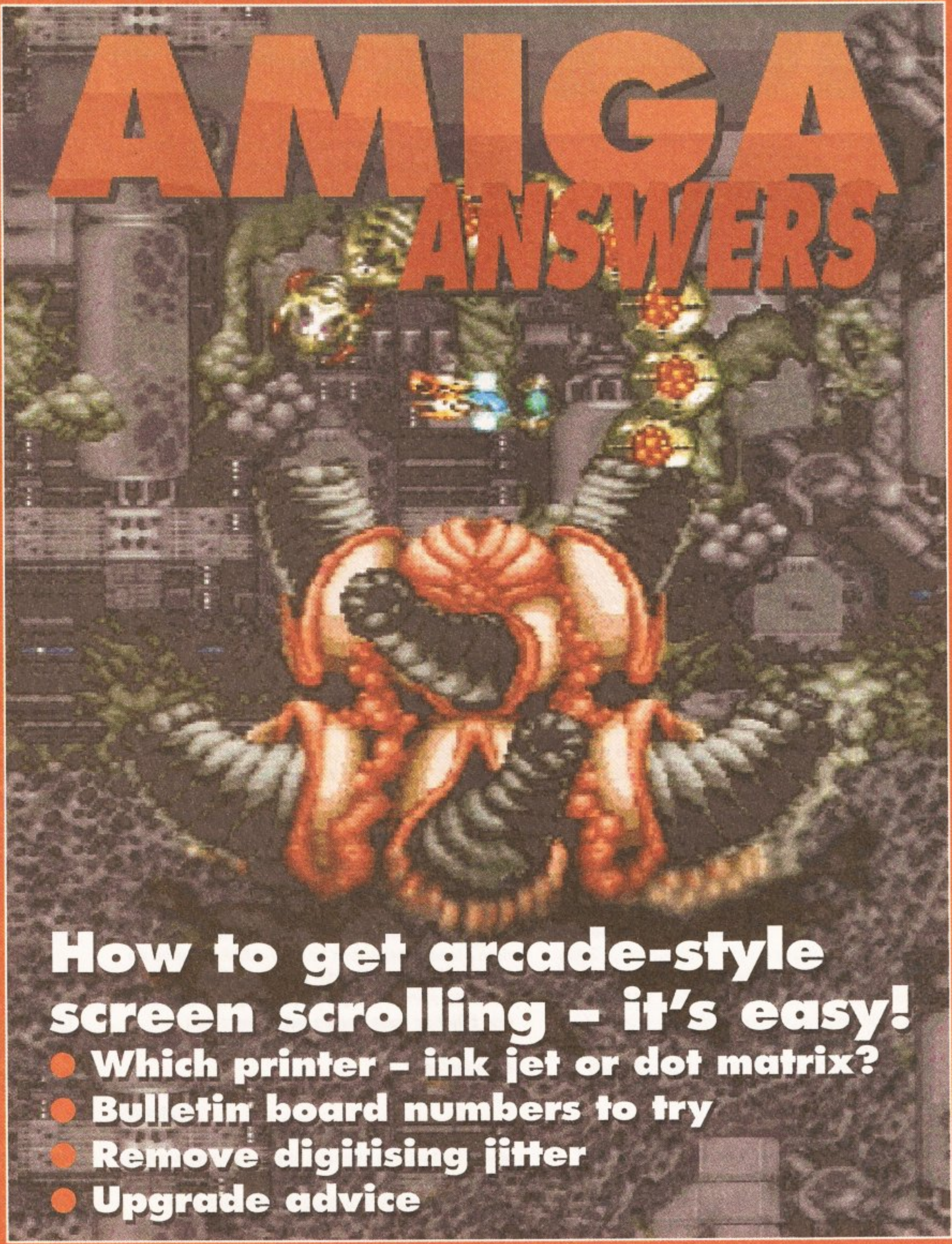
Unfortunately we cannot guarantee insertion in a particular issue.

I have read and understood the conditions for the inclusion of my ad.

Signature..........

CONTENTS AT-A-GLANCE

OUR EXPERTS TACKLE YOUR REAL-LIFE PROBLEMS



USING THE ICONS TO FIND WHAT A QUESTION'S ABOUT

BEGINNERS Questions raising basic problems or dealing with elementary issues.

GENERAL General Amiga-related queries or questions that don't fall under other headings.

DTP Queries related to the whole area of Amiga desktop publishing.

MONITORS Questions about monitors, including television display problems.

HARDWARE Queries relating to general hardware, excluding kit covered by other headings.

BUYING Questions asking for buying advice in any area, hardware or software.

PRINTERS Queries about printers, printer drivers and hardcopy problems.

CODING Questions about coding (no matter which language).

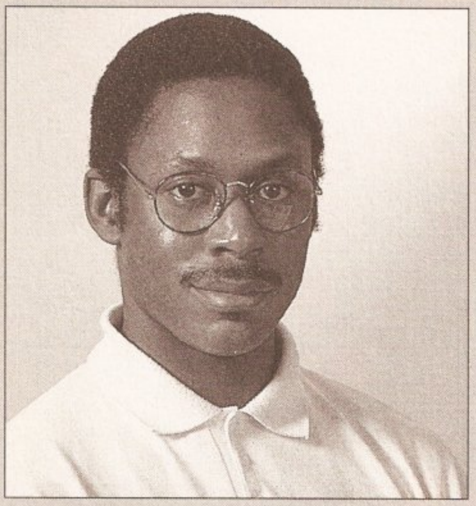
VIDEO Queries about using your Amiga with video hardware such as genlocks or digitisers.

MUSIC Questions about MIDI, sampling, music software and synthesisers.

SOFTWARE Queries about specific software packages or programs.

COMMS Questions relating to comms, including modem problems.

NO PROBLEM!



Are you burdened by Amiga problems? Graeme Sandiford takes the weight off your shoulders.

Hello and welcome, once again, to our magazine within a magazine. I am Graeme Sandiford, *Amiga Shopper's* technical writer. I'm here to make certain that all your problems, only computer-related ones, are sorted out. At *Amiga Shopper* we want you to get the best out of your machine, that's why we devote more space than any other magazine to helping you, the reader. So please keep your questions coming in. I will do my best to ensure that you don't suffer too many sleepless-nights, or lose too much hair!

Our use of jargon-busting boxes continues to ensure that explanations of any unfamiliar terms are given. The problems are put in a wide context for everybody's benefit. It's worth your while to have a look through these pages to see if someone else has a problem similar to your own. The index on the previous page is your guide to the topics covered this month.

I am sure you are all familiar with our house team of Amiga experts. Mark Smiddy is our AmigaDOS and floppy drive expert. Jeff Walker is our desktop publishing, fonts and printer correspondent. Gary Whiteley is a trusted expert on video applications and graphics. Jason Holborn is the master of the intricacies of AMOS. If you have a query about comms, we'll set Dave Winder on the case. Toby Simpson is our code clinician. He'll sort out any problems to do with anything from C to assembler. Pat McDonald is a man who knows all you need to know about CD-ROMs, hard drives and general hardware. Finally, we've got a man you can rely on when it comes to operating systems programming – Paul Overaa.

It's up to you to help us help you. Send us your queries, problems, or general tips and hints. If you have a good tip, you could be a tenner richer. Write to me, with as much information as possible, and I will do my utmost to sort you out!

A600 MEMORY



I wish to upgrade the memory of my A600. How much can be added and how can this be achieved? The reason why I need to upgrade the memory of my machine is because I intend to purchase a good wordprocessing/DTP package. Which one would you recommend? Finally, is there a compatible CD-ROM drive available for the A600? If so, can it be used with the above packages?

Allan Reid
Thorpe Hesley, Rotherham

The A600 can be expanded to a maximum of 2 Mb of chip RAM and 4Mb of fast ram, giving a total of 6 Mb in total. The standard A600 has 1 Mb of RAM but an additional Mb can be added for around £35 which is connected to the machine via the trapdoor slot. If you want to do DTP work, this additional chip RAM should be at the very top of your shopping list.

The A600 can accept fast RAM using a standard PCMCIA expansion card. These come in two flavours – 2 Mbytes and 4 Mbytes. Obviously you should therefore go for the size that best suits your requirements and budget (the 2 Mbyte card will set you back around £120 whereas the 4 Mbyte card will cost £180). Once again, 4 Mbytes is best for DTP work.

Which word processing and desktop publishing program you buy depends entirely upon the sort of work you want to do. If your needs are relatively simple then a word *publishing* program will probably suit your needs perfectly as it will give you everything you need from a word processor and a fair selection of DTP page layout tools to boot. For more advanced work, however, a dedicated desktop publishing program such as *PageStream* or *Professional Page* will probably be a better bet. These more advanced programs do really need to be run from hard disks, however, so this may add to the expense if you don't already have a hard drive inside your machine. ***JH***

4L SUPPORT



I am thinking of buying a Hewlett-Packard LaserJet 4L for my DTP work. As this printer has been designed for use with the PC, will I be able to use it? Is Studio the only printer driver I will be able to use? Will I be able to access all the fonts in the printer? Will Turboprint Professional 2 be OK?

On a different subject, with PageSetter3, every time I load a page that has IFF-ILBM pictures on it, the program asks: "Load bitmap files immediately?" If I say Yes the program crashes. Has this bug been sorted out? I have had PageSetter3 since it was first released. Has it been revised?

Gavin Dodds
Sunderland

You certainly can use the LaserJet 4L with the Amiga (in fact you can use any of the new Hewlett-Packard printers with the Amiga), but you will require extra software because the standard Workbench printer drivers and preferences programs are not fully featured enough to control modern high-quality printers.

Because the 4L does not have a control panel as such, it needs to be controlled by software – a software version of a printer control panel if you like. This is one of the programs included with *Studio Printer Software*, along with a proper printer driver and enhanced preferences programs. *Studio* is currently the only Amiga printing software that provides full and proper support for Hewlett-Packard printers.

As for accessing the printer fonts, if all you want to do is select one of them and print your entire document in that printer font, then any word processor that has a **Choose Font Number** option should enable you to select the printer fonts that are numbered 0 to 10 inside the printer. But if you want to mix and match those fonts in one document, then the word processor you are using will need to support such a feature. *Protext 6* currently has the best word processing support for printer fonts and will enable you to freely use any or all of the 4L fonts.

I am not aware of any updates to the original *PageSetter 3* release, and as Gold Disk has now suspended developing for the Amiga I would guess that you unfortunately are going to have to live with any bugs you discover. ***JW***

I STAND INFORMED



In answer to Phil Higgin's query regarding movement of the Vidi-Amiga preview screen and RGB misalignment I don't believe Gary Whiteley gave a correct answer.

Gary is correct in his answer regarding PAL jitter (the apparent movement which takes place due to the two fields which make up the frame being rather different), but I don't believe that this is the answer to Phil's problem.

I think that the flickering is due to an up-and-down movement of the whole image because of a slight misalignment of the position of the video head as it scans two fields on the stationary video tape. In some higher spec video equipment there is a manual adjustment, usually called Vertical Lock, which can be used to correct the vertical adjustment of the two video fields. Careful adjustment of this setting will help the digitiser avoid grabbing misaligned red, green and blue components.

Please note that the setting of the vertical lock can vary between the TV (or monitor) and the digitiser. Some experimentation may be required to get the best results with a particular digitiser as the TV or monitor may not show an accurate

vertical lock, but the signal may in fact be correct for the digitiser.

A more expensive solution is to use a digitiser with a built-in frame buffer when grabbing images from video tape.

Steve Preston
Ballymena, Co. Antrim.

Thanks Steve. I have to admit that this solution never came to mind, which just goes to prove that there's always more to learn, no matter how much you already know.

Just to clarify Steve's last comment, a digitiser with a frame buffer allows live pictures to be grabbed on the fly, alleviating the need for pausing the videotape and so avoiding the wobbles that Steve mentions in his correspondence. ***GW***

PINS OR JETS?

PRINTERS

I have just started using PageSetter3 to produce price lists, with some graphics, and would like to print these on a colour printer. My budget limits me to £200-£300, and I don't know whether to get a 24-pin dot-matrix, or a budget priced inkjet. Will there be much difference in quality?

C Shelstone
Fulwood, Lancs

The difference in quality between the budget priced DeskJet 310C or 500C and a standard 24-pin colour printer is enormous. The pins in pin printers are very large when compared to the jets in inkjets, so pin printers put bigger dots on the page. This can cause printouts to appear dark and muddy.

There are several other points to ponder:

- Pin printers *always* suffer from an amount of *banding*, white or dark horizontal lines across the graphics printout, caused by a mixture of inaccuracies in the paper feed mechanism and by the unavoidable overlapping of printer dots. Some inkjets also suffer this problem, although the latest crop from Canon and Hewlett-Packard have largely eradicated banding.
- Printer ribbons are generally cheaper than ink cartridges, but ribbons contaminate and wear out quite quickly, so in the long run they cost more.
- Ink-based colour printers always print best on to special types of paper, they rarely print very well on to ordinary *bond* (photocopier) paper, so the cost of special paper has to be added to the equation if you plump for an inkjet.

To get the best graphics out of any colour printer, but particularly with colour inkjets, there is no getting away from the fact that you need greater control than Workbench can give you over the colours and the way the dots of colour are mixed together on the page to form other colours – colour correction and dither patterns in other words. So the cost of some printer software like *Studio* should be added to your budget. But then this software requires Kickstart 2 or better, and I see that you are still using Kickstart 1.3 so, unless you are prepared to upgrade, I would forget about high quality colour printing altogether. Go for an inexpensive Epson-compatible colour 9-pin instead.

There is also a hidden factor – memory. Printing in colour requires three or four times as much memory (and takes three or four times as long) as printing in greyscales. The 2Mb you have in your A500 is not as much as it seems, and you might find that some colour printouts from *PageSetter 3* will have bits missing, or weird colours, or other strange phenomena. It depends on what you are printing and how much free memory there is, but I would recommend at least another 2Mb to be a bit more comfortable. ***JW***

GUESS THE LANGUAGE

CODING

I've created a text editor called Deluxe Text and wish to add a few loading screens (Deluxe Text now loading... and so on). I don't want these messages printed on an AmigaDOS screen, but I want to create fancy title pictures using Deluxe Paint and show them on a black background. I also want a similar screen asking which printer is connected, so that a function key can be used to select a printer type (F10 should be left for users who have no printer).

Gareth Gudger
Penwortham, Preston

You've not said what programming language you are using, so I can really only offer a little general help. Some languages, like AMOS, will allow you to load IFF files directly. In this case a simple solution is to write a short program to set the screen to your chosen background colour, display the picture using a **LOAD IFF** statement, and then chain run your main program from that. With other languages IFF files may need to be converted into image structures or other bitmap representations in order to be used.

Your language manual ought to give some details of the steps required? There are many sophisticated ways of setting up title displays, but from your letter you are very new to programming so you ought to be keeping things as simple as possible. By the way, there is never any need to hard code printer selection options into your program. The whole point of **Preferences** is that it allows the user to select their chosen printer and then, providing all printing is done using the printer device, the **Preferences** selected printer driver will automatically be used. ***PAO***

MORE SPEED PLEASE

GENERAL

I have an A500 and a GVP A530 with 68030 accelerator and 4Mb of 32-bit RAM. Will a 68882 co-processor speed up the screen refresh update and scrolling when using Final Writer? Would it make any difference to the printout speed on my Canon BJ-230?

Lastly, is there a good PD source of EPS clip art that can be used with Final Writer, and what is the best program for creating clips in EPS format?

Tom Dolan
Dromiskin, Eire

A 68882 will make a slight difference to *Final Writer* (reviewed in issue 33. If you missed it turn to page 74) screen refresh rates and printout times as both of these jobs require an amount of calculation beforehand. But a 68882 will not make any dramatic difference in this particular situation because it is the CPU (the 68030 chip) that is doing most of the work.

Contact EM Computergraphic (☎ 0255 431389) for PD EPS clips and, if you want to create your own, you will need to buy *Art Expression*. This is the only Amiga drawing program that can export in the *Illustrator88* format, which is the type of EPS file *Final Writer* uses. ***JW***

PACMAN CLONE

CODING

I promised my fiancee that I would write her a PacMan clone (she just loves PacMan!) and, true to my word, this is precisely what I did. The maze is made up of 6 icon blocks reserved in bank 2 (I'm using AMOS). It's not much fun playing the same maze over and over again and there are only so many mazes you can generate with the limited number of maze blocks that I've created. I therefore decided to design some more and this is where the problems started to occur.

My icon bank now contains 32 tiles but I can only display the first 9 (1-9). "No problem," I thought, "I'll just write a section of code that will recognise the letters A-Z in the maze data and display the tiles accordingly (where A is 10, B is 11 and so on)." I consider myself a competent programmer but this is beyond me. I have tried till I am blue in the face, but with no success. Please can you help me!

E Bateman
Goodwick, Dyfed

Having studied your code, you'll be pleased to know that you were actually on the right track. The only thing that you were doing wrong is that you were immediately converting each tile value (be it a number or a character) to a number using the **VAL()** function. The problem with this approach is that if the **VAL()** function is passed a character (A through to Z, for example) it will ignore it and return a value of zero instead. What you must do is to check to see whether the tile value is a number or a letter first and then use the **ASC()** function if it's a letter. The letter 'A' returns an **ASCII** value of 65 and so it's very simple to turn this into the number that you require simply by subtracting 55 from it. Here's the new version of your code:

JARGON BUSTING

Digitiser **– a device which takes the analogue information from a source such as a video camera and converts it to digital screen information for use by a computer.**

RGB **– Red Green Blue – a standard for video signals that provides better quality than composite or Radio Frequency signals.**

Dot matrix **– the cheapest method of printing. Shapes are made up of an array or matrix of ink dots, created by a series of pins impacting against an inked ribbon. The closer the dots are together, the higher the resolution and quality of the result.**

Accelerator **– a device which either includes a central processor like the Amiga's, or a much more advanced one in the same range, but operating at a higher speed. An accelerator is very useful for calculation-intensive applications, such as 3-D rendering.**

JARGON BUSTING

***ASCII* – American Standard Code for Information Interchange. It is the data storage method commonly used when we type text files and it enables data to be exchanged between different computers.**

***Optical character recognition* – a process whereby text can be scanned in from a page and converted to a form suitable for the computer. Normally, images scanned using a hand-scanner are converted to the IFF graphics format. In order for the computer to be able to interpret the data as text, this must be converted to ASCII format, a complicated process whereby the software has to recognise the patterns of each letter, being aware of the different patterns inherent in different typefaces.**

***C* – a compiled language designed primarily for systems programming. It was used to write much of the Amiga's operating system, and is used in the writing of many Amiga applications.**

```
Rem *** Maze handling code
Rem *** Debugged by Amiga Shopper!

Reserve As Work 10,240

For L=0 to 11
  Read MAZE$
  For LZ=0 to 19
    BLOCK$=Mid$(MAZE$,LZ+1,1)

    Rem *** Is it a number?
    If Val(BLOCK$)>0
      Rem *** If so, treat as normal...
      TILENUM=Val(BLOCK$)
    Else
      Rem *** Is it a space?
      If BLOCK$=" "
        TILENUM=0
      Else
        Rem *** Otherwise subtract 55
        Rem *** from ASCII value...
        TILENUM=Asc(BLOCK$)-55
      End If
    End If
    POSITION=Start(10)+(L*20)+LZ
    Poke POSITION,TILENUM
  Next LZ
Next L
```

JH

OCR

BUYING

I am trying to get hold of some optical character recognition (OCR) software. I have seen such software for the PC, but I don't want to splash out on an emulator just to use OCR. I'm on a tight budget, so could you tell me if there is anything available for under £50, or is there any PD solution?

Matthew Clay
Great Ayton, Cleveland

You are in luck. There is no PD OCR software, but the best OCR software available for the Amiga, *Migraph OCR*, has recently been reduced to £49, which is an incredibly cheap price for such a sophisticated program. This full version of *Migraph OCR* (it is not the *junior* version, but the full version) requires at least 2.5Mb of RAM to handle hand scanner size files, or at least 4Mb for A4 pages. A hard drive is also required. Speak to the UK distributors, Golden Image UK Ltd (☎ 081-365 1102), for more details. ***JW***

FLICKER FIXED

MONITORS

I was planning to buy a Commodore dual-sync monitor for my A1200, preferably the 1942 with the .28 dot pitch. But I was reading a review of that monitor and it said that it still flickers in interlaced mode. As I use ProPage 4 a lot, I find the best screen mode to use it in is Super-High Res Laced, but it flickers like mad on my 1084S. I thought a monitor that was designed for the A1200/4000 machines could hold the new high resolution screen modes without flicker. Should I go ahead and get the 1942? Is it worth the money just for a higher dot pitch?

Tim Forde
Portadown, Norn Iron

Because interlaced screen modes double the screen's size by quickly alternating between two displays, the screen refresh rate on your 1084S is effectively halved to 25 frames a second. Every 25th of a second the display is switched between the *even* lines and the *odd* lines of the display. This is why you see the flicker.

To get rid of the flicker the computer needs to send all of the lines about every 50th (or faster) of a second, and the monitor needs to be able to read and display all those lines at once. The Amiga can only send PAL signals at the slow 15.6kHz rate, so no matter what monitor you fit, PAL interlaced modes will flicker. But the AGA chip set in the A1200 and A4000 offers another screen mode, **DBLPAL**, which, although not quite double the speed of PAL, sends the signals fast enough to have a **DBLPAL High Res Laced No Flicker** display – 720 by 550 pixels at maximum overscan, which is about as high a resolution as you can comfortably work with on a 14-in monitor without having to glue your nose to it. Naturally the monitor must be able to read and display the faster signal, and the 1942 does indeed support **DBLPAL**. ***JW***

DICE DIFFICULTIES

SOFTWARE

After some problems, I have managed to install DICE and modify the "User-startup" and "Shell-startup" files on my hard disk. However, when starting up I get a message about "invalid device..." and when starting the Shell I get "DICE:bin" not mounted.

B.P. Morris
Landore, Swansea

This is one of those problems that could do with some more explanation. Readers note: if you have any error message at all, please note it exactly. "Invalid device..." is not usually enough to determine exactly what has gone wrong. In this case I would guess that a badly spelt assignment is causing the problem. For example, the following line is wrong:

```
1>ASSIGN DICE DH1:dice
```

The correct line would be:

```
1>ASSIGN DICE: DH1:dice
```

Note the colon following the device name **DICE:**. The name must be followed by at least one space then the directory pathname to which it refers. This is probably indirectly causing the problem: **DICE: bin** not mounted. C is syntactically a fairly complex language, and with all due respect, if you are having difficulty with basic AmigaDOS you should give it a miss at this stage. ***MS***

MOVING UP

BUYING

I bought my A500 to use for games mostly, but also for quite a bit of school work – projects and so on. I upgraded my A500 from 512K to 1Mb, but most DTP packages seem to require at least 2Mb of memory. I have been considering buying an A600. Is it worth my while?

Michael Hannath
Portadown, Norn Iron

Well, the most standard memory you can add to an A600 is 1Mb in the trap-door, making 2Mb in total. After that you need to get some so-called **smart card memory** to plug into the PCMCIA slot, and 4Mb is the most you can put in there. So 6Mb in total, and this will be plenty to potter around with budget *PageSetter 3* DTP program, or a graphics based word processor like *Wordworth* or *Final Copy*.

Desktop/word publishing without a hard drive is a real drag, however. Fonts on umpteen disks, clip art on umpteen more disks, pages and templates on umpteen more disks... It is a slow and frustrating experience and is what puts many novices off desktop publishing. With a hard drive life becomes so much easier, so I advise you to buy a A600HD rather than the straight A600. Keep in mind that the A600HD is fitted with the old 68000 CPU, just as your A500 is. The other frustrating thing about DTP is that nothing happens quickly unless you have enough processing power under the hood, so it might be a better idea to buy a GVP A530 expansion unit for your existing A500, or an A1200, which is fitted with the much faster 68020 CPU. ***JW***

RESIZING WINDOWS

CODING

I have only been programming in C for a short time and I have come across a problem that I cannot solve easily. I wish to open a window with similar attributes to the information window in Workbench 3, ie, to be able to change the size of the window using the gadget in the top right hand corner next to the depth gadget, but the window must not have a variable sizing gadget which appears in the bottom right hand corner of most other windows. I have tried using alterations of the window structure but have found that I can have both, or neither. I am using SAS C 6.0.

Antony Steel
Loughor, Swansea

It's a pity you didn't send me the code, as it might have been a candidate for Code Clinic! I suspect you're using **OpenWindow** instead of the newer **OpenWindowTags**, which gives you much more control over how you open windows and what attributes they have. I've written a small example which opens a window with *only* the **Zoom** gadget! But there is a commented line that allows you to have the depth gadget next to the **Zoom** gadget too (recommended, it looks silly without it!). Here's the listing:

```
/*  $VER: zoom.window.c 1.00 (02-03-94)
** Amiga Shopper Answers: Opening a window with
just the Zoom Gadget
** By Toby Simpson
** Note: Under some compilers you will need to
open the intuition library.
*/

#include <stdio.h>
```

```
#include <exec/types.h>
#include <intuition/intuition.h>
#include <dos/dos.h>

#include <clib/dos_protos.h>
#include <clib/exec_protos.h>
#include <clib/intuition_protos.h>
#include <clib/gadtools_protos.h>
#include <clib/utility_protos.h>

/* This is where the window ends up and what
size it is when you press the Zoom Gadget */
WORD Zoom_Destination[] = {10,20,200,100};

void main(void)
{
 struct        Window *test_window;

  /*
  ** Open our window
  */
  if (!(test_window = OpenWindowTags(NULL,
    WA_Title, "Test Window",
    WA_IDCMP, NULL,
    WA_Left, 163,
    WA_Top, 198,
    WA_InnerWidth, 300,
    WA_InnerHeight, 100,
    WA_MinWidth, 70,
    WA_MinHeight, 30,
    WA_MaxWidth, -1,
    WA_MaxHeight, -1,
    WA_Zoom, Zoom_Destination,

/* Un-comment this line for a depth gadget too
(It looks silly without it!) */
 WA_DepthGadget, TRUE,
   WA_DragBar, TRUE,
   WA_CloseGadget, TRUE,
   WA_Activate, TRUE,
   WA_SimpleRefresh, TRUE,
     TAG_DONE)))
      {
      printf("Can't open window\n");
      return;
      }

  /*
  ** Wait a tad and then close our window and
exit
  */
  Delay(200);

  CloseWindow(test_window);

  return;
}
```

This has been tested using SAS C and should compile fine under DICE also, although to keep the code short, it takes into account the fact that SAS C opens the Intuition library for us, so you might need to add code to do that for other compilers.

The third edition of the RKM *Libraries* book explains this in detail, and by getting the *Amiga Developers Kit*, which covers all versions of Workbench up to 3.1 from Commodore, further information and stacks of examples are available. If you want to get this, and it's worth its weight in gold, send a cheque for £23.00 made payable to: Sharon McGuffie, Commodore Business Machines UK Ltd., Commodore House, The Switchback, Gardner Road, Maidenhead, Berks SL6 7XA.

And remember to enclose a covering letter asking for the *Amiga Developer Kit 3.1*. ***TS***

DPAINT FONTS

SOFTWARE

I have installed DPaint3 on to my hard drive. I would like to install DPaint's fonts, but have been unsuccessful. Can this be done or must I continue to use my Art disk?

Gary Glencross
Whitelees, Cumbernauld

Open a Shell window, stick the *DPaint* Art disk in the internal disk drive and type:

```
COPY DF0:FONTS TO FONTS: ALL
```

Note the colon between **DF0** and **FONTS**, also note the other colon directly after the second **FONTS**, and finally note that there is a space after **COPY**, a space either side of **TO**, and another space before **ALL**. Don't forget to press the **Return** key to execute the command. ***JW***

GRIDLOCK

PRINTERS

When printing documents designed with PageStream 2.2, any pages that have scanned graphics on them (scanned with the Golden Image hand scanner) print in an ugly, banded fashion, with the entire page marred by a strange grid. I use PageStream to resize the graphics, and the documents are usually 2-6 pages long. Is my problem my Citizen 140+ printer, or is it my A500 computer?

Gene Holman
Reisterstown, USA

It's a mixture of the comparatively low output resolution of your printer, and the format of the scanned graphics. I presume you are saving the scans as 1-bit (pure black-and-white) graphics rather than converting to shades of grey. There is nothing wrong with doing this, but because the graphic contains distinct patterns of dots (a *dither* pattern) you need to scale the graphic by exact amounts (which depend on the output resolution) to get the best results. This technique doesn't work too well with printers other than higher quality inkjets and lasers because the printer needs to be able to put very small dots on to the page.

What you need to do is convert your 1-bit dithers into true greyscale pictures. *PageStream* (reviewed in issue 17 – turn to page 50–51 to order that issue) will make a much better job of printing these, and you will be free to scale them any which way you like. Early versions of *Touch-Up* (the Golden Image hand scanner software) did not have this convert-to-greys feature, so if you have an old version of the software the first thing you need to do is upgrade it. ***JW***

STAR CONTROL

PRINTERS

I have a Star LC-10 printer, in the manual of which are pages of control codes. When I has a BBC computer I could easily use them, but I am unable to do so with my A500 Plus. Please tell me how to make full use of the mass of options available. Is it possible to do this from QED, TextEngine, PowerText and so on?

D Walker
Blackpool

The way the Amiga prints is a little more sophisticated than the way your BBC printed, so sending raw printer control codes is not so easy. Your best bet is to check out some utilities in the *Fred Fish* collection. *Printer Controller* on *Fish Disk 757* will enable you to send Amiga escape codes (ANSI-style codes) to your printer using an Intuition interface. *PrinterCTRL* on *Fish Disk 723* will do the same, plus it will enable you to send the raw hexadecimal printer codes that are published in your manual. On *Fish Disk 653* there is a program, *WControl*, enabling you to change the text style.

You can only control the printer from within a word processor if that word processor enables you to send either ANSI escape codes or raw printer control codes. *Protext* (reviewed in issue 35) has the best word processor support for printer control codes, I do not know of any PD or shareware program that provides similar control. Graphics based word processors like *Wordworth* and *Final Copy* do not support the sending of ANSI or raw printer control codes. ***JW***

UPGRADE!

SOFTWARE

With my old A500, printing from Protext 4.22 was fast. But when I upgraded to an A1500 and Kickstart 2, printing from Protext 4.22 is much, much slower. If I do an ASCII save from Protext and print that document from Opus, it takes 37 seconds, whereas Protext 4.22 takes almost three minutes to print the same thing!

What's going on? I have used Protext 4.22 for a while and find it superb for my needs. I would hate to have to buy and get used to a new package to get back my printing speed.

Paul Manzi
Bournemouth, Dorset

There is a bug in that very, very old and now completely unsupported version of *Protext*. The answer is simply to upgrade to version 6 of *Protext*, which doesn't have that bug and has much better printing facilities anyway, including the ability to easily select and use any or all of the fonts inside your printer. ***JW***

RELATIVE ADDRESSING

CODING

I've been programming in 68000 assembly language for some time now, and I would like to know the difference between:

```
lea      label_name,a1
```

and...

```
lea      label_name(pc),a1
```

and also:

```
bne      label_name
```

and

```
bne.s        label_name
```

Please help me with this question, as I cannot seem to be able to find the information anywhere in my books.

Jonathan Hawkins,
Beeston, Leeds

Well, as far as functionality goes, both the **leas** and the **bnes** achieve exactly the same thing. The difference is in the code that is generated by the assembler, and the way in which the eventual aim is accomplished by the 68000 chip. In the **(pc)** version of **lea**, the label is referenced as an offset from the current position, the **pc**, whereas in the first example, it is referenced directly. Since the offset is relative addressing, rather than specifying direct physical addresses, it is fully relocatable. Also, a whole address is not specified, just a 16 bit signed displacement from the address register in brackets (In this case, the **PC**, program counter), so the machine code generated is only 8 bytes. The non **pc-relative** version takes 10 bytes of memory. **PC relative** addressing is very useful when referring to structures, as you can do things like this:

```
move.b        ln_Pri(a0),d0
move.l        ln_Succ(a0),a1
```

In this example, **a0** points to the start of the structure, and you specify the relative offset into it of the item you wish. When you deal with programming with the Amiga operating system you'll come across this sort of addressing often.

The branching question is a good one. The **.s** postfix means *short*. Normally, when using the branch instruction (**B**, followed by a condition code, such as the **NE** we're using for *not equal to zero*), you can only jump 32K either forwards or backwards from the current position, as it is a signed **PC-relative** 16 bit offset, rather like in the above **lea label_name(pc),a1** examples. The result is that the generated machine code is 4 bytes, 2 for the instruction and 2 for the **pc-relative** offset. Often you don't need to go that far, especially in short copying loops, for example. **.s** means *short*, and uses an 8 bit **pc-relative** offset which means you can jump up to -128 bytes backwards, and 127 bytes forwards. If you use **.s** and you try and jump too far, the assembler will generate an error telling you so. Some modern assemblers can be asked to use the **.s** version automatically when it will reach. ***TS***

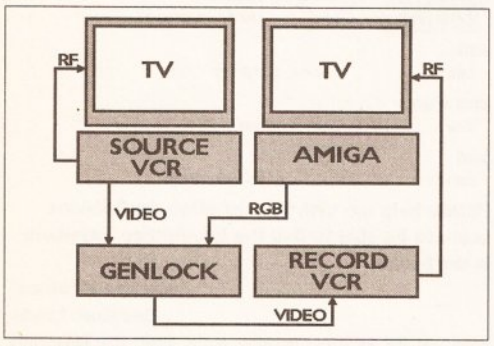
ROC-UP



How do I connect up my RocGen Plus genlock and A500 computer to my two video decks and TV monitors? I have tried many ways but cannot get it right. Sometimes when it seems to be right and I start recording, the monitor on the computer scrolls to a black screen. I also have a Sima mini-editor/enhancer/switcher coupled up.

A. Moran
Rotherham.

This is the kind of question I have nasty problems with, mainly because you've provided me with absolutely no information at all about the video decks and monitors, their connectors, signal inputs and so on. Let's get on with trying to solve your problem though. First the diagram...



The Amiga's RGB output is connected to the RocGen Plus as can be seen above.

As you can see, the Amiga's RGB output is connected to the RocGen Plus. The video deck earmarked as the picture source must be connected to the RocGen's video input, whilst the RocGen's video output goes to the video input of your record VCR. The video connections to and from the genlock must be composite video. RF, the type of signal commonly provided by an aerial connector, is not suitable and will not work.

Since you don't mention having an RGB monitor with your Amiga, you'll presumably have to monitor the Amiga and/or genlocked video signal on one of your TV sets connected to the record VCR. In this case, you can use either RF or video signals between the VCR and the telly, whichever you find acceptable and can find suitable cables for. Bear in mind that RF pictures won't be as good as composite or RGB video signals though.

You can use your other TV to monitor the video from the player if you like, though it isn't strictly necessary as you should be able to see this on the output monitor when the genlock controls are set to **Video** or **Mix**, for instance.

It will most probably help to have the source video playing when you boot up the Amiga in order to properly lock the genlock to the incoming video signal. Also, always use good quality tapes for your original recordings and do not copy them unless you have to. The RocGen Plus doesn't seem to like tapes which have poor sync signals on them, which could be the case with low grade tapes or inferior quality copies.

If you can, experiment by feeding video from live TV into the genlock and use it as your test signal. At least you'll have a continuous source of good quality signals which will give you a better opportunity of checking out your system.

If you need special cables, such as SCART to phono, or you aren't exactly sure *what* cables you need, try a specialist TV, video or electronics store. Don't forget to take diagrams of the connectors on all your equipment with you. ***GW***

IMAGINE VS THE GURU II



I would just like to comment on Paul Davis's letter (Amiga Answers, Issue 34) about Imagine 2 crashing with a division by zero error. I suspect that Paul might have a problem with glass objects, as from my own experiences I've found that my Amiga 500 gurus when I raytrace glass objects with Imagine. Perhaps this will help Paul with his troubles?

S.J. Teague
Pontypool, Gwent.

Thanks for your comments. In fact, you could be right. However, try as I might, I cannot ever recall having had this problem on my own systems and (even though I've tried) I've not been able to get a division by zero guru to occur with *Imagine* myself.

For your information, there is a known bug where a glass object, indeed any transparent object, will not render correctly when placed in front of another transparent object. As far as I am aware, this bug has not been fixed in *Imagine* 2.9 (the stop-gap release before version 3.0 finally hits the streets). There are also problems when rendering glass objects in front of fog objects, but again I've not been able to determine if this could cause the **Divide by Zero** error that Paul Davis was having problems with. ***GW***

GAMES OVER



I am in my fifth year at school now and I am finally getting down to using my A500 Plus for things other than games. I need a good quality PD word processor with a spelling checker that is simple to use. It needs to be able to read PC files created by Write for Windows, and then save them so that I can load them into the PC at school and use the school's printer. I am on a budget of about £10. Can you help me?

Brian Porteus
Eaglesfield, Cumbria

There are some PD word processors and there are some PD spelling checkers, but there are no PD word processors with built-in spelling checkers. Naturally, none of these PD programs can hold a candle to what is available commercially, but we put *EdWord* and *AZSpell* on the cover disk that came with issue 25, so you might like to investigate these first. To be able to transfer text files between the PC and the Amiga, you will always have to save your work in **ASCII** format. To be able to read from and write to a PC disk in an Amiga drive you will need to get hold of *MessyDOS* — any PD library should be able to help you there. ***JW***

CDTV CD-ROM



Will a CDTV used as a CD-ROM drive connected to my A1200 be able to play AGA disks designed for the CD-32? If this is impossible, will the Parnet adaptor work in any way with the CD-32? The reason why I ask is because I am in a lucky position to be able to buy a CDTV for £180 brand new. I would like to be able to access the CD-ROM with my A1200. I already own a CD-32 so is this investment worth it?

Mr R. Fletcher
Post NCO, The King's Royal Hussars

Connecting a CDTV to your A1200 via an interface cable such as *Parnet* will not automatically allow you to run CD-32 software on your A1200 for a number of reasons. First of all, the CD-32 uses a double speed CD-ROM drive which can transfer data at twice the speed of the drive inside the CDTV. Secondly, neither the CDTV or the A1200 have that special Akiko *planar* chip which allows the CD-32 to manipulate bitplane data so fast.

If you already own a CD-32 then there's little point in buying the CDTV anyway. Not only will it allow you to run CD-32 software (what as strange concept – a CD-32 running CD-32 software!) but you can also use the CD-32 as a dumb CD-ROM drive with a little piece of software called *SerNet* which is available on the *Fred Fish* collection of disks. *SerNet* works in a very similar manner to *ParNet* but it uses serial communication rather than the parallel port (which the CD-32 doesn't have!). All you need is a copy of the *SerNet* software and a standard null modem cable. ***JH***

A MATTER OF STANDARDS



I am currently writing a program that converts Amiga IFF 8SVX samples to the format used by the Yamaha SY85 synthesiser (using CrossDOS to transfer the converted samples on to the SY85 disks). All SY85 samples contain a 1024 byte header followed by the sample data, but only the first 64 bytes of this header are used.

At the moment I'm only guessing the meaning of the header data but, although some samples have worked, the majority have not. I would be grateful if you could print a breakdown of the header as Yamaha have not been very helpful.

Steven Bird
Upper Mill, Oldham

I must leap to the defence of Yamaha here because, on the many occasions I've asked them for assistance over the years, they have always gone out of their way to help. Part of the trouble in your case was simply due to the fact that the required SY85 technical material was not available in the UK. Yamaha R&D finally managed to obtain an SY85 spec from Japan (along with permission to release it) and, since there is far too much material to print, I have on this occasion, sent the spec directly to you. So why bother to print this reply? It's really just to give me a chance to thank Dan Powell at Yamaha R&D for going worldwide to locate the SY85 spec. ***PAO***

JARGON BUSTING

Font – the group of letters, numbers and special characters that comprise one variation of typeface, eg. 12pt Times, 12pt Times Bold, 12pt Times Italic.

BASIC – Beginners' All-purpose Symbolic Instruction Code is a high-level programming language, much favoured by micro-computer users. It combines a fair amount of power with ease-of-use.

Printer driver – a program that converts any codes describing text and graphics format into a form suitable for a specific printer.

DEVICE - creating a means of communication with peripherals such as disk drives, printers, modems, the keyboard and windows.

Partition – part of a hard drive separated off from the rest.

PROGRAMMING DREAMS

CODING

I am 14 years old and would like to program computers, hopefully the Amiga, when I am older. At the moment I'm most interested in playing games, but would like to move on to programming utilities and applications later on. Do you think I should learn C, or buy Blitz BASIC 2. Various reviews of Blitz seem to say that it allows the use of fairly advanced programming techniques. Is Blitz faster than C? Would Blitz be a good stepping stone on the way to learning assembly language?

Josh Lury
Melbourn (near Royston)

C is an important language on the Amiga, but you need to understand a lot about the Amiga's operating system in order to use it effectively. Also C is a compiled language and this makes things difficult from a practical viewpoint. You have to learn about header files, compiling, linking, and so on. For beginners this is an absolute nightmare.

BASIC is still the best language to start with but here I personally think it would be best to take a long term view and learn a 'Microsoft flavoured' BASIC, rather than a BASIC which has been heavily tailored to a particular machine. That way the things you'll learn about it will be applicable to BASIC on many other computers. My choice here would be HiSoft BASIC. Having said that Blitz 2 is good for games and it does allow many impressive things to be done easily. It's also fast, but the question about whether it's faster than C is pretty meaningless – it all depends on what code you're talking about, on who wrote it and how, on whether the C compiler allowed parameters to be passed in registers, and on a million and one other factors. Used properly C is in fact a very fast language indeed. Neither Blitz 2, or any other high level language, will directly help you move into assembler programming. What any high-level language experience will do, however, is give you the chance to learn about programming in general. As you learn about designing programs, using loops and decision tests and so on, you will end up with a level of understanding which will make the move to assembler a little bit easier. ***PAO***

BIT OF A CHEEK

PRINTERS

I have a Canon BJ-10ex printer and mostly use the EpsonQ printer driver with it. I bought a printer driver specifically for my BJ-10ex called Canon48, but I cannot get it to work. I have tried to install it on to DPaint II and KindWords 2, but it merely corrupts my programs. I have altered the prefs to Custom and typed CanonBJ10e, but with no success. Please help with detailed instructions on how to install it. I would also like to condemn companies for supplying software without adequate documentation included.

Stuart Peake
Saltney

The Amiga printer driver named *Canon48* was an early beta-test (experimental) version of a driver that was being developed way back in 1990 for the old Canon BJ-130 bubble jet printer. It should not have been distributed back then (but these things happen), and it certainly should not be for sale today, especially for use with modern bubble jets, because it won't work properly with them. To get a free (yes, FREE!) disk of proper bubble jet drivers for the Amiga, and installation programs with instructions, contact Canon Technical Support (☎ 0891 616151). To get the best from these new drivers you will require Kickstart 2 or later, but although the new preferences programs on the Canon Disk will not be available to Kickstart 1.3 users, the drivers themselves will work under Kickstart 1.3. Simply install the required driver in **DEVS:Printers** (that's the Printers drawer that is inside the **Devs** drawer on whatever disk you boot from) and select and control the driver via the Workbench 1.3 Preferences program. ***JW***

THE POINT OF NO RETURN

GENERAL

When installing files in the WBStartup directory and re-booting, I get an error message. For instance, when attempting to use Tools Daemon, given out with the February issue, a message appears saying "Programme Tools Daemon has not returned." Should I wait some more? Clicking on the OK button clears the message only for it to appear approximately 30 seconds later. Even when dragging the clock utility to WBStartup I get a similar message.

J. Pringle
Dunfermline, Fife

This occurs because Workbench, in running each program as quickly as possible, doesn't see the signal back from the program showing that it is up and running. You can avoid these requesters by adding the **DONOTWAIT** tooltype to each of the icons you place in the **WBStartup** drawer.
PAO

BIT OF A DRAG

PRINTERS

I have installed Citizen Print Manager on to my hard drive and the relevant driver is in the DEVS:Printers drawer. I have also installed the printer driver and fonts from Wordworth. Is there any way for the printer device, Citizen Print Manager that is, to be loaded automatically when I load Wordworth? Unless I load Citizen Print Manager first, I get a "Can't open printer device" message when I try to print something. If I try to then open Citizen Print Manager, I get the message: "Old printer device active. Please finish printout first." I then have to save the document and reset the computer, and then open Citizen Print Manager and Wordworth again. Is there a way around this?

Gary Glencross
Whitelees, Cumbernauld

Drag the *Citizen Print Manager* icon into your **WBStartup** drawer, then it will be run automatically every time you boot your Amiga. You may need to add a **DONOTWAIT** ToolType to the *Citizen Print Manager* icon. ***JW***

INSTALLING APPLICATIONS

GENERAL

I have recently added a 128Mb hard disk to my A1200 and have divided it into three partitions: 6Mb for the system; 20Mb for data; and 80Mb for applications, leaving the remainder spare. However, I have not been very successful in getting my applications to run.
1.) Why, when I try to run Maxiplan, am I interrupted by the message "Cannot open explode.library". I had already followed the instructions in the manual, but can get no further than this.
2.) I tried dragging the Protext 4.3 into a partition on the hard disk. When I open the icon and show all files, I find that the entire Protext disk appears to be there, but the program will not run. I have a feeling I must edit the Startup-sequence, but am unsure of how to do this.

T. Jenkins
Hastings, East Sussex

This sort of problem is more common than you might imagine and is the sort of thing that many intermediate users get stuck with. It's no wonder beginners get totally bogged down.
1.) This one should be easy enough to sort out. All you have to do is copy the file **explode.library**, which you'll find in the **LIBS** directory of your *Maxiplan* boot disk, to the **LIBS** directory on the System 3.0 partition of your hard disk. You should be able to do this simply using **Show...All Files** from the Workbench. For future reference, when a program asks for a **SomeOld.library** when running from hard disk, all you have to do is locate the **library** in the **LIBS** drawer of the original disk and copy it to the **LIBS** directory of your hard disk. (Good software should come with a hard disk installation program that should do this for you.)
2.) *Protext 4.3* is something of a law unto itself and I cannot explain why it does not work from Workbench. You may have to run it from the Shell using the following commands (assuming the drawer is called protext and it's on the **DATA** partition): **CD DATA:Protext** and **Protext**. I'm afraid I can't be more help than that: you might like to contact Arnor and ask them. ***MS***

WRONG TREE

SOFTWARE

Is it possible to use the Workbench 2 fonts, garnet, ruby and so on, with TransWrite? I have tried what it suggests in the manual. The command ESC[6W produces enlarged text, but \ffHelvetica, \ffTimes and \ffgarnet have no effect.

A Webster
Shanklin, IOW

TransWrite cannot load and print Amiga bitmapped or Compugraphic fonts. It can only use the standard topaz font for screen display, and can print with only those fonts that are in your printer. The **\ff** commands you have tried are typesetting commands only intended for use with the

PageSetter and *ProPage* desktop publishing programs. What you need is a graphics based word processor, something like *Wordworth (*see review on page 20), or *Final Copy (*reviewed in issue 25 of *Amiga Shopper*. See page 74 for back issues). ***JW***

THE COST OF COMMS



I would like to get into comms, but could you tell me how much it would cost per minute online using a 14,400 modem? Could you also tell me a few BBS numbers please?

James Duffen
Great Barr, Birmingham

Right, this is one of those questions that has so many variable answers it would fill the *Amiga Answers* section all on its own. The speed of your modem makes no difference to the online cost of using a BBS. Where it does make a difference is when it comes to transferring files in either direction. The faster the modem speed, the less time it takes for the transfer, and thus the less money you give the phone company. If you are using a non-commercial BBS then you will be paying the standard call charge for your telephone service provider (the amount will differ depending on if you are using Mercury or BT, and if the call is local or long distance, peak or off peak). If you are using a commercial service such as CIX or CompuServe then on top of your telephone bill you also have to pay a connect charge for every minute you are connected to the service, and some of the services offered may attract further online charges. As for BBS numbers, you could try the following Boards which are in the Birmingham area (but which I have not tried personally):

Barney's Rubble ☎ 021 446 6257
WinterMute ☎ 021 628 5277
Magic Castle ☎ 021 430 3761
Bungalow Bills ☎ 021 525 8274
Act BBS ☎ 021 475 9037 ***DW***

UPGRADE ADVICE



I currently own a 1Mb A500 with external drive; a GVP Impact Series II fitted with 120Mb HDD and 4Mb RAM, and a Citizen Printer. I would like to upgrade to an A1200 and would appreciate your advice on the following.
1.) Is it worth exchanging it all for an A1200?
2.) Would the printer and disk drive work with the A1200?
3.) How much is the current setup worth (excluding the printer and floppy drive)?
4.) Would this be enough to buy a similar A1200?
5.) Is it possible to copy the contents of my current IDE drive to a SCSI setup or would I have to re-install from the original disks?

James Alldis
West Totton, Southampton

1.) Assuming you meant the whole lot for an A1200 – then I'd say no. The A1200 is good, but it's not that good.
2.) No problem whatsoever.
3.) That depends on the state of the market where you live and the time of year. As things stand, a 1Mb Amiga with Kickstart 1.3 is worth between £100-120. The drive is probably worth quite a bit more since they are sought after and it might realise as much as £300-350 in hard cash, assuming you can find a buyer with the money.
4.) If you could get someone to part with £500 for the Amiga and hard disk drive, you should be able to get a similar setup as the one you have now, although it would only have 2Mb RAM.
5.) All things are possible, some things are easier than others. This problem is best solved by copying the lot back from floppies. Make sure you use a good backup system though: the Commodore one (BRU) can be twitchy at best. ***MS***

JARGON BUSTING

SCSI **– Small Computer Systems Interface is the standard used for connecting hard drives, CD-ROM drives and tape back-up units to computers.**

Modem **– device which connects to the Amiga's serial port and converts computer signals into a suitable format for transmission along a phone line. Likewise, it will convert incoming signals back into a form the computer can recognise. External modems will work with any micro computer, although it is possible to buy Amiga-specific cards to plug into the A1500 and A2000, thus keeping the serial port free for something else.**

PC **– IBM PC compatible computer based on one of the Intel 8086 or 80xxx series CPUs, and with similar hardware/software configuration.**

Printer emulation **– a method employed by most printers to imitate other models.**

CONNECTING SCSI DRIVES



I have two GVP 52Mb hard disks, one of which is slotted on the side of my A500+. Is it possible to link my second hard drive to the setup via the SCSI ports and if so, where could I get a cable? The first drive is configured with 4Mb of RAM and the second has a PC-286 emulator.

Jeffrey Elmer
London

I've never heard of anyone attempting this, but the answer is probably no for the simple reason you'll need to power the second drive. This is usually configured via the external power supply and switched with the Amiga. The simplest answer would be to strip the second controller: transferring the PC-286 card into the first one and putting the hard drive in a custom case like the Roctec RocMate. This is a little box, PSU and cable specifically designed to add extra SCSI drives to such setups. Prices vary from place to place, so you will have to shop around. Expect to pay around £100. If that sounds a lot, consider the PSU itself will probably account for £50 of that! ***MS***

THREE'S A CROWD



I have no problem printing from Pen Pal with my Citizen 240C, but when I feel some tweeking is needed to the printer driver, for graphics say, I cannot figure out the driver hierarchy. There's the preferences in Pen Pal, the Amiga driver (EpsonQ) and the Citizen Print Manager, for example. Many settings appear on all three drivers, so which one is in control?

S Huntley
Havant, Hants

When *Citizen Print Manager* has been run, it totally takes over all printing facilities. In technical terms it throws out the standard Amiga printer device and replaces it with its own printer device, and because *Citizen Print Manager* is the only program that knows how to properly control its own printer device, no other program can control it. So you should use the *Citizen Print Manager* preferences program to make any adjustments.

When *Citizen Print Manager* is not running, the Workbench Printer and PrinterGfx preferences editors are in control. For your convenience the printer preferences panel in *Pen Pal* contains duplicates of some of the Printer and PrinterGfx features, so that you do not have to run other programs to adjust printer settings. Any features in *Pen Pal's* printer preferences that are not duplicates of features in Printer and PrinterGfx will be features that are specific to *Pen Pal* and controllable only from the *Pen Pal* printer preferences panel. ***JW***

TWO IN ONE



When using KindWords 3 and my Canon BJ-10ex printer, I cannot get italics or bold while using the Canon BJ-10e driver and while the printer is in BJ-10 emulation mode. It performs OK when in Epson LQ mode with the EpsonQ, or the CanonEpson driver from a public domain disk. What am I doing wrong?

Ian Brown
Toddington, Beds

Nothing. The BJ10 emulation mode does not contain an italicised character set, so you cannot have italics in that mode when using the printer's internal fonts. The Epson LQ emulation does have an italicised character set, so you can have italics in that mode. It's the way that printer works. Essentially you have two printers in one – simply select the one you want to use. The BJ-10 emulation is much better at printing graphics than the Epson emulation, whereas the Epson emulation contains more printer fonts. The Canon drivers you are using are old and clunky and were updated years ago. Contact Canon Technical Support (☎ 0891 616151) and ask for the proper disk of Amiga printer drivers for Canon printers. ***JW***

ADDRESS BOOK PROBLEMS



Having acquired Commodore's Amiga Developers Kit, 3.1, I decided it was time to start working through Toby Simpson's "Address Book" series so that I could learn to program in C. Well, I'm stuck on the first installment! I've entered the code, and it compiles fine, but linking fails with "Undefined Symbol _seek". I have looked through the include files, and everything seems to be OK. I replaced 'seek' with 'write', and then it seemed to work fine. Any idea what could be wrong? My files are included.

Also I am having problems with monitors. Articles that I have read say that screen flicker should not be a problem with a multisync monitor and WB 3.0 (With mode Promotion), and yet it seems impossible to display an interlaced screen without it flickering hopelessly. DBLPAL, DBLNTSC and Productivity work fine, but how can I display a higher resolution that 640x512 without flicker?

Also, my Microvitec monitor has faint vertical stripes down it, and a white line down the centre of every screen it displays. One of the little phosphor dots is broken and always shows black regardless of what is displayed on the screen. I

GVP WORLD CLASS PERIPHERALS

AMIGA NEW PRODUCTS

RETURN THE COUPON FOR 64-PAGE AMIGA GUIDE

VIDEO GENLOCK
FOR ALL AMIGAS



This extremely high quality Amiga genlock, from GVP, has an intuition-based software control panel with full ARexx and command line interfaces. Easy to use, the G-Lock genlock features many sophisticated attributes among which are:

- *Two Composite Video Inputs or S-Video (Y/C) Input*
- *Simultaneous Composite & S-Video and RGB Output*
- *Video Processor - Real Time Software Control of Video Attributes (Sharpness, Gain, Brightness etc)*
- *ARexx Compatible*
- *Works with Flicker Fixers*
- *Multiple Keyer Modes*
- *Full Audio Support*

AMIGA FORMAT GOLD 94%

G-LOCK ~~£349~~ **£299** INC VAT - VID 2500

NEW 40MHz & 50MHz ACCELERATORS
FOR AMIGA 1200



WITH UNIQUE MODULE EXPANSION OPTIONS

- *40MHz 68030EC and 50MHz 68030 Accelerator*
- *Unique Feature Connector for Module Expansion*
- *Built-in Memory Management Unit on 50MHz Version*
- *Optional 60ns 32Mb RAM Upgrade*
- *Battery Backed Clock*
- *Optional 40MHz or 50MHz 68882 Maths Co-Processor*
- *Sophisticated Memory Management and Cache Control Software*
- *Kickstart Remapping Technology*

TOP RATED — CU-Amiga Feb '94 97%

The new GVP A1230-II, available in 40MHz 68030EC and 50MHz 68030 configurations, are the most advanced accelerators yet for the A1200. They can make your Amiga run 6½ times (40MHz version) or 8½ times (50MHz version) faster than the standard A1200 and feature unique module expandability.

MMU OR FPU?
The 50MHz version includes a built-in Memory Management Module (MMU), for more sophisticated memory control. An optional FPU (Floating Point Unit: for faster maths calculations) is available for the 40MHz and 50MHz versions (see below), both have RAM upgrade options (up to 32Mb, see right).

UNIQUE MODULE EXPANDABILITY
The A1230-II is unique in that you can add further functionality to your Amiga by using expansion modules. GVP will be releasing a wide range of optional modules, the first being a high speed SCSI-2 interface. A 16-bit sound sampler and real time frame grabber will follow shortly. All modules can be fitted without invalidating the Amiga's warranty.

RAM UPGRADES

The A1230-II accelerator combo has two 32-bit SIMM sockets for easy Fast RAM expansion. The following SIMMs can be used in this slot.

- 1Mb 60ns Fast RAM SIMM - (RAM 3216) - £69 inc VAT
- 4Mb 60ns Fast RAM SIMM - (RAM 3246) - £199 inc VAT
- 16Mb 60ns Fast RAM SIMM - (RAM 3286) - £1299 inc VAT

SCSI-II EXPANSION MODULE

- *A1291 - Fastest SCSI Controller Yet*
- *DMA SCSI Design*
- *FaaaST ROM Controller*
- *High Speed, Unique DPRC Technology for Direct HD to Memory Transfer*

A1230-II SCSI EXPANSION MODULE **£79** inc VAT - UPG 1600

A1230-II PROCESSOR ACCELERATOR

40MHz 68030EC NO MMU				50MHz 68030 WITH MMU			
NO FPU			WITH 40MHz FPU	NO FPU			WITH 50MHz FPU
0Mb RAM	4Mb RAM	8Mb RAM	4Mb RAM	0Mb RAM	4Mb RAM	8Mb RAM	4Mb RAM
£249 inc VAT - UPG 1240	£449 inc VAT - UPG 1244	£649 inc VAT - UPG 1248	£549 inc VAT - UPG 1246	£379 inc VAT - UPG 1500	£579 inc VAT - UPG 1540	£779 inc VAT - UPG 1580	£679 inc VAT - UPG 1545

24-BIT GRAPHICS CARD
FOR A1500/A2000/A3000/A4000



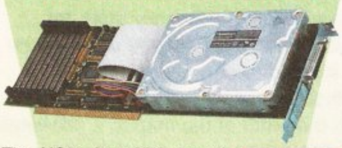
EGS Spectrum is the answer to all your 24-bit graphics card requirements. It is a high performance, high resolution, 24-bit board that will take any Amiga 1500, 2000, 3000 or 4000 beyond AGA! But the hardware is only half of the picture. Without quality software, your investment will be wasted. Not only does GVP's own award winning graphics application ImageFX fully support EGS Spectrum, but also, using a Workbench driver, nearly all existing Amiga Workbench compatible applications will also work on and support the EGS Spectrum system.

- *1Mb or 2Mb of On-board Memory* — *2Mb gives, higher resolutions & more colours (1030x768 Vs 1600x1280)*
- *On-board Hardware BLiTTER*
- *Future Re-targetable Graphics Support*
- *Zorro II or Zorro III Autosensing*
- *Scan Rates up to 80KHz*
- *80,000,000 Pixels/sec Pixel Display Speed (8-bit)*
- *Programmable Display Resolution 320x200 to 1600x1280*
- *Supports Data Transfer Rates up to 12Mb/sec on Zorro III Systems*

EGS SPECTRUM

1Mb RAM	2Mb RAM
NEW! £349 INC VAT - VID 7310	NEW! £399 INC VAT - VID 7320

HARD DRIVE CARD
FOR A1500/A2000/A3000/A4000



The HC8+ is a high speed hard drive and RAM card which can also be used to increase your Amiga's RAM by up to 8Mb RAM.

A FULLY FEATURED SCSI INTERFACE FOR A4000s

- *High Speed DMA SCSI Controller Can Handle up to 7 Devices*
- *Ultra Fast Access SCSI Hard Drive Option - See Below*
- *Supplied Unpopulated, the HC8+ can be Upgraded to Give You up to 8Mb of FAST RAM - See Below for Details*
- *Direct Memory Access Style Design for Top Speed Transfer*

HC8+ HARD DRIVE CARD

0Mb HD	120Mb HD
— £129 INC VAT - HAR 1300	~~£399~~ £229 INC VAT - HAR 1422

RAM UPGRADE CARDS

GVP HC8+ INCLUDES 8 SIMM SOCKETS FOR EASY INSTALLATION OF FAST RAM. THE HC8+ WILL ACCEPT 2, 4, 6 or 8Mb USING 2, 4, 6 or 8 SIMMS

1Mb SIMM **£39.95** EACH INC VAT - MEM 3628

8-BIT SOUND SAMPLER
FOR ALL AMIGAS



Capture sound from an external source and play it back in stereo or mono on your Amiga. The latest version of GVP's Digital Sound Studio (DSS8+) enables you to create audio effects for use in games or jingles.

- *New Style High Impact, Clear Poly-Carbonate Casing*
- *Simultaneously Holds up to 31 Sound Samples in Memory*
- *Real-time Oscilloscope, Spectrum Analysis, Echo & Reverberation*
- *AREXX Compatible*
- *Microphone Input*
- *.MOD File & MIDI Compatible*
- *FREE Samples Disk*

DSS8+ £69 INC VAT - MUS 2510

ACCELERATORS
FOR AMIGA 1500 & 2000



FAST! 32-bit TECHNOLOGY

GVP offer a range of A1500/A2000 accelerators that simply outstrip the competition for speed and specifications.

SPECIAL OFFER SAVE £64! 120Mb SCSI HARD DRIVE + MOUNT KIT HAR 2063 ~~£233~~ **£169** INC VAT
ONLY WHEN PURCHASED WITH G-FORCE ACCELERATORS SHOWN BELOW

G-FORCE ACCELERATORS	030 40MHz	040 33MHz
Speed MIPS*	12.1	30
Processor	68030EC	68040
Maths Co-Pro.	68882 included	In 68040 processor
Std 32-bit RAM	4Mb	4Mb
Max 32-bit RAM	16Mb	64Mb
Extras	SCSI	SCSI Ser/Par
PRICE	£599 INC VAT - UPG 0430	£999 INC VAT - UPG 0740

*MIPS: Millions of instructions / second, a normal Amiga runs at .87 MIPS

PLUG-IN HARD DRIVE
FOR THE AMIGA 500 & 500PLUS
+ RAM EXPANSION TO 8Mb



The A500 HD8+ provides the ultimate in hard drive performance, it can also increase the memory of your Amiga by up to 8Mb, support up to six SCSI devices and provide PC compatible emulation via its custom expansion slot (mini slot) see below.

"Without doubt the best hard drive available for the A500 ..."
Amiga Format April '93

AMIGA FORMAT GOLD 92% — TOP RATED CU - AMIGA

COMPARISON CHART

FEATURES/MODEL	GVP HD8+	ICD TRIFECTA LX	COMMODORE A590 20Mb	EVESHAM REFERENCE 100
*TRANSFER RATE: Kb per second	1066	1028	564	400
GVP DESIGNER STYLING	✔	-	-	-
RAM EXPANSION (MAX)	8Mb	8Mb	2Mb	4Mb
MINI SLOT (FOR FUTURE EXPANSION)	✔	✔	-	-
SCSI INTERFACE	✔	✔	✔	✔
GVP PERFORMANCE Faaast ROM	✔	-	-	-
DEDICATED POWER SUPPLY	✔	✔	✔	-

*Figures taken from *Amiga Computing*, October 1993

HD8+ 120Mb HD, 0Mb RAM — PREVIOUS PRICE ~~£399~~ **£299** INC VAT - HAR 0922

PC EMULATOR
FOR USE WITH HD8+ or A530
PLUGS INTO THE HD8+ OR A530 TO ALLOW YOU TO RUN PC COMPATIBLE SOFTWARE ON YOUR AMIGA
286-16MHz EMU 0500 **£99** INC VAT

IMAGE PROCESSING
FOR ALL AMIGAS WITH 4Mb RAM

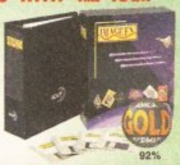


Image FX is a complete solution for all your image creation and editing needs. It has a vast range of facilities, can read and write to many other different file formats and directly controls a wide variety of hardware.

- *24-bit Painting*
- *ARexx Compatible*
- *Virtual Memory Support*
- *Load, Save and Convert to the Following Formats: ANIM, BMP, Clipboard, DCTV, DPIIE, GIF, HAM-E, ILBM, IMPULSE, JPEG, RENDITION, SCULPT, TARGA, TIFF AND MORE*
- *Scanning, Framegrabbing & 24-bit Board Support* — *Comes with Modules for Several Popular Hardware Devices: JX100, IV24, AGA/AA Chipset*
- *Create Animations*
- *Numerous Special Effects* — *Edge Feathering, Shading, Alpha Channel, Morphing, Compositing etc*

AMIGA FORMAT GOLD 92%

CINEMORPH INCLUDED! SEE DETAILS BELOW

IMAGE F/X ~~£269~~ **£199** INC VAT - ASI 2002

VIDEO EFFECTS
FOR ALL AMIGAS WITH 3Mb RAM



CineMorph from GVP opens up the world of Morphing, the process of converting one image to another to create dazzling special effects. Currently very popular in music videos and feature films, morphing has become the fashionable video effect to use. Now with CineMorph you can create these stunning effects on your Amiga.

- *Supports the AA Chipset*
- *Static or Full Motion Morphing*
- *Single Image Warping*
- *Fast Render Times*
- *Renders to HAM-E and*

CINEMORPH ~~£99~~ **£25** INC VAT - ASC 4422

11351403/4

THE SILICA SERVICE

SILICA 1978 15 1993 YEARS SERVICE TO YOU

Before you decide when to buy your new Amiga products, we suggest you think very carefully about WHERE you buy them. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica, we ensure that you will have nothing to worry about. We can meet our customers' requirements with an understanding which is second to none. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Service".

- *FREE OVERNIGHT DELIVERY:* On all hardware orders shipped in the UK mainland.
- *TECHNICAL SUPPORT HELPLINE:* A team of technical experts will be at your service.
- *PRICE MATCH:* We match competitors on a "Same product - Same price" basis.
- *ESTABLISHED 15 YEARS:* We have a proven track record in professional computer sales.
- *PART OF A £50M A YEAR COMPANY* With over 200 staff - We are solid, reliable and profitable.
- *BUSINESS + EDUCATION + GOVERNMENT:* Volume discounts are available. **Tel: 081-308 0888.**
- *SHOWROOMS:* We have demonstration and training facilities at all our stores.
- *THE FULL STOCK RANGE:* All of your requirements are available from one supplier.
- *FREE CATALOGUES:* Will be mailed to you with special offers and full details of hardware, peripherals and software.
- *PAYMENT:* We accept most major credit cards, cash, cheque or monthly terms (APR 29.8% - written quotes on request).

SILICA

HOT LINE 081-309 1111

SILICA IS A DIVISION OF PRODIS PLC

MAIL ORDER: 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX **Tel: 081-309 1111**

CHELMSFORD SHOP:	Debenhams (2nd Floor), 27 High St, Chelmsford, Essex, CM1 1DA	Tel: 0245 490654
CROYDON SHOP:	Debenhams (2nd Floor), 11-31 North End, Croydon, Surrey, CR9 1RQ	Tel: 081-688 4455
GLASGOW SHOP:	Debenhams (5th Floor), 97 Argyle St, Glasgow, Strathclyde, G2 8AR	Tel: 041-248 3896
IPSWICH SHOP:	Debenhams (2nd Floor), Waterloo House, Westgate St, Ipswich, IP1 3EH	Tel: 0473 287092
LONDON SHOPS:	52 Tottenham Court Road, London, W1P 0BA	Tel: 071-580 4000
	Selfridges (Basement Arena), Oxford Street, London, W1A 1AB	Tel: 071-629 1234
MANCHESTER SHOP:	Debenhams (3rd Floor), Market St, Manchester, Lancashire, M60 1TA	Tel: 061-839 3654
SIDCUP SHOP:	1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX	Tel: 081-302 8811
SOUTHEND SHOP:	Keddies (2nd Floor), High Street, Southend-on-Sea, Essex, SS1 1LA	Tel: 0702 468039

To: Silica, AMSHP-0594-68, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX

PLEASE SEND ME A 64 PAGE AMIGA COLOUR CATALOGUE

Mr/Mrs/Miss/Ms: .... Initials: .... Surname: ....

Company Name (if applicable): ....

Address: ....

....

.... Postcode: ....

Tel (Home): .... Tel (Work): ....

Which computer(s), if any, do you own? 68AC

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

CODE CLINIC

Author: Rob Maddison
Language: 68000 Assembly Language
Problem: Sideways scrolling using the video hardware

This is quite a fun problem and it should get your brain steaming just thinking about it. One of the most painful things for an Assembly language programmer to get to grips with is hardware scrolling. The nightmare of eight way scrolling is something you only want to go through once. If you're not careful you can end up with a mechanism which seems really neat, but uses an astronomical quantity of memory to produce the effect. Rob was faced with a sideways scrolling problem similar to this. Initially, he created a bitmap three screens wide and scrolled through it, using the hardware fine-scroll registers to move 16 pixels at a time and then increasing the bitplane pointers by two and resetting the fine-scroll, the basic sideways scrolling technique. Here comes the catch. Since the bitmap was only three screens wide, three screens was as far as he could go. Obviously, for a computer game such as *R-Type*, the levels are much longer than three screens, and to make a bitmap ten, or more, screens wide would be prohibitive on all but the most expensive Amigas with stacks of memory available. Rob tried with just one screen, using the blitter to shift the whole display after fine-scrolling 16 pixels. Although this worked, the results were jerky and not satisfactory (The blitter may be fast, but it isn't *that* fast). So, there must be a better way of doing it – after all, commercial games have been doing it for years. The answer is yes, there *is* an easier way. Rob had already figured out that the screen should be constructed out of *tiles*, in this case squares 16x16 pixels in size. The idea is that you hold a map which shows which block goes where.

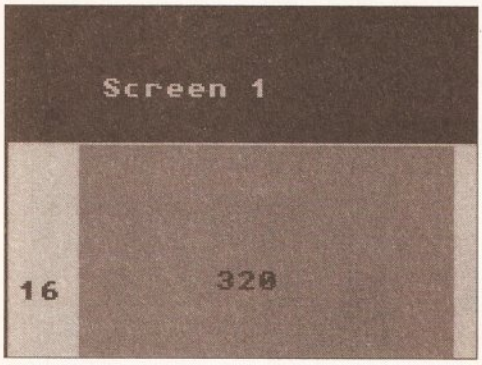


Diagram of the basics of sideways scrolling.

This month's code clinic is brought to you by the use of a diagram. I'll introduce a basic way of doing sideways scrolling without using too many screens. The method I'll describe will scroll to the right for as far as you want it to, using only two screens of memory, or four if the display is to be double buffered. Let us have a look at the diagram first. Imagine, for the sake of example, our main screen display is 320 by 256, a normal PAL Lo-Res display. In memory we create a screen which is roughly twice as wide as the display screen. This gives us two screens next to each other and, in this case, an extra strip of 16 pixels at the beginning.

Initially we read data out of our map and draw to the section shaded in brown.

Before we can start scrolling into screen 2, we'll have to draw a column of blocks in so that there is something to look at when we start moving. To do this we'll look into our map data, fetch the appropriate data and draw the same column *twice* into the two yellow shaded areas. You will see *why* in a while. Then we start scrolling, using **bplcon1** to fine scroll 16 pixels. When the whole of the right hand yellow strip is in view, we fetch the next map column and draw that into the right of the first, again, in both screens. It doesn't matter that we're drawing into screen 1 now because we can't see it, we've scrolled away from the left hand border now.

The fine scroll is reset, and 2 is added to the bitplane pointers. We then repeat this process until we are showing the entirety of screen 2. Now for the clever bit. If you've followed this OK, you'll notice that we now have a complete copy of screen 2 in screen 1. So, we quietly swap back to screen 1 and carry on. As long as we have map data we could carry on for ever, getting to screen 2 and swapping back to screen 1. If you're confused as to how this works, sit down with a sheet of paper. Draw the two boxes next to each other to represent screens with the little extra strip on the left and follow it through, shading in each column of squares as you go along, and number them. This means that you would draw column 1 into the extra strip on the left and the first column of screen 2, the column 2 to the right of the first one, and so forth. You'll see clearly that by the time you've moved your way across to screen 2 you have two identical screens, so you could swap back to screen 1 and just carry on.

This technique works with a little adaptation for scrolling up and down. By adding another pair of screens underneath, you can make a system which will do eight way pixel scrolling using only four screens (*or*, of course, eight if you double buffer).

To try and clear up any confusion let's summarise some of the more technical details. Since the screen is 256 pixels high and the blocks are 16 by 16, the map would be 16 high. Our screen is 320 wide, so there are 20 blocks across on a screen. If we wanted to scroll ten screens, we'd need a map 200 by 16. Assuming one byte per square (which would give us up to 256 different map squares), this would be a map size of 320 bytes. You would keep a count of how far across into the map you were. At the very start, for example, this would be zero. If you counted one per column scrolled, then when you needed to refresh the first column, you would take this counter, add the width of the map to it (20 bytes) and that would be the top square of the new column. Then add 200 bytes to take you to the next square down in the column and keep going 16 times, also remembering to draw the same column in the area to the left of the screen which you can't yet see.

Hopefully this will give you some clues as to how to attack the problem of sideways scrolling. If anyone is really interested in seeing some program code demonstrating this sort of problem, write in and, if there is enough interest, a future code clinic will provide a listing.

Send your programming problems in ARexx, 'C' or Assembly Language to *Code Clinic* at the usual *Amiga Shopper* address. ***TS***

can cope with it, but could the problem spread?

Simon Kewin,
Chorlton, Manchester

The problem in the Address Book was a typing error. The functions for accessing AmigaDOS have a capital letter at the front, and C is case sensitive, so **Seek** and **seek** are different functions altogether. Ensure that all OS calls are spelt exactly as they appear in documentation, so you'll need to change **Close**, **Write** and **Read** also.

As for your monitor problem, you cannot display interlaced modes without flicker, unless you have additional hardware called a *Flicker fixer* which de-interlaces the screen. These are available for A2000s and A3000s, and won't function correctly inside the A4000 as you'll only get 4096 colours out of it. Your solution is to buy a professional display card such as the Picasso or Retina and plug this into your A4000, and you'll get superior display resolutions and colours without flicker, so long as your monitor is up to it.

I suspect something is wrong with your monitor to produce some of the effects you describe. Sometimes though, lines can be caused because of incorrect placing of your monitor, perhaps too close to another electrical item, particularly speakers and other displays. Ensure that this is not the cause before seeking further advice. The missing dot shouldn't spread, but it might be worth getting the monitor fixed properly if it is still under guarantee. ***TS***

MORE SERIAL PORTS

BUYING

I'm setting up a multi-line BBS. Are there any 8 serial port cards available? If there are, what machine would I need, how much would I have to pay, and where could I get one from? I hope you can help or I may end up having to run my BBS on a PC!

Eddie Saunders
Harlow, Essex

Commodore themselves make a card with 7 serial ports, called the A2232. However, this has an effective maximum baud rate of 19,200. What with the advances there have been in modems over the last few years, it seems that Commodore have fallen behind the times. The real solution is to get in touch with the Applied Systems Group on 0652 688330. They can supply you with their Amiox card which not only has 8 serial ports, but also 4 parallel ports. The Amiox works with a maximum baud rate of 38,400 and is supplied with the necessary drivers. You can use as many of these boards as you wish, up to a theoretical maximum of 256 serial ports! An Amiox will work, Applied Systems assure me, with all current Amigas and costs £199. The same company also have a board

known as the Seriox which provides 4 serial ports only, and costs in the region of £120. ***DW***

EMULATION WORRIES

BUYING

I am writing to you in the hope that you can offer me some advice. I have an Amiga 500 Plus with a 1 Mb trapdoor expansion (2 Mb in total) which is connected to a TV via a SCART cable. The machine is used mainly for games but I wish to also use it for word processing, database and possibly DTP work. At work I use a PC for basic word processing and database work and during my lunch hour I play games on the 256 colour VGA display (XWing, Strike Commander etc).

My brother has recently purchased an Amiga A1200 . What I have seen and read about the A1200 and its amazing graphics, it seems like a perfect upgrade option. I was originally going to expand my A500 with a GVP hard drive, monitor and so on (should I buy a 1084 or a multisync?). I understand GVP sell a PC emulator for the GVP hard drive which will allow me to run the PC word processing and database software. Will the colour VGA games I play at work run on this emulator and if so, will they work with the mono VGA mode offered by the PC emulator? In your opinion, should I...
1.) Upgrade the A500 and add a PC emulator?
2.) Purchase an A1200 and expand that. Are there any PC emulators available for the A1200?
3.) Upgrade the A500 and buy a PC?

Mr D.M.Bacon
Caterham, Surrey

PC emulators are perfectly OK if all you want to do is to run *serious* applications like databases and word processors but they won't handle most PC games, especially newer titles such as *X-Wing* and *Strike Commander*. PC games are notoriously power hungry - a game like *X-Wing*, for example, isn't really that playable on anything less than a 486 and even then you should be looking at a DX equipped with a fast local bus video card. The GVP PC emulator, on the other hand, is just 286 based – even if you were to get a game like *X-Wing* to run, it would run so slowly that it would just be too unplayable. To be perfectly honest, the only type of machine capable of running VGA-based arcade games is a PC, so I'd advise you to buy a PC if this is what you want to do. As far as I'm aware, there are no hardware-based PC emulators available for the A1200 which could theoretically handle the PC VGA display (how fast it could update that display is another matter entirely!). My advice to you would be to sell your A500 and buy an A1200 and a PC. An expensive option maybe, but at least you get the very best of both worlds. ***JH***

DRIVING ME DOTTY

PRINTERS

I have a DeskJet 500C colour printer, but I cannot get it to print in colour very well. I have the 500C printer driver on my Workbench, and when I print using my Power colour hand scanner software all I get is a load of mixed colour dots. I have tried using DPaint to print the scanned pictures, but they still come out poor. How can I get the printouts to look better?

Archie McKinnon
East Kilbride, Scotland

I think the first thing you should do is read (or re-read) the *Colour Your World* article in issue 32, particularly the bit about the *PowerColour* scanner, which explains how high quality *true* colour works.

Part of the problem is that you are currently printing a palette-based or HAM representation of the scanned graphic, which is always going to be of a much lower quality than the actual 12-bit colour graphic produced with the *PowerColour* scanner. What you need to do is save the scan as IFF24 and print exactly that. Both *PowerScan* and *DPaint* will convert that graphic to a lower quality one in order to display it, and both these programs print exactly what is displayed, not the original graphic. So to get higher quality output you need software that can read and print true colour graphics.

Another part of the problem is that you need greater control over the colour output than Workbench printer preferences can give you. You need better colour correction facilities, and a greater choice of dither patterns. The reason for your "load of mixed colour dots" is that the dither pattern that Workbench is using to mix printer dots to produce the illusion of more colours is not suitable for printing high quality colour graphics. You need better printing software, and the most comprehensive support for colour DeskJets comes with *Studio Printer Software* (reviewed in issue 33 of *Amiga Shopper*. If you missed this issue, see page 74), including a special program to print true colour graphics. ***JW***

HARD AND FAST

GENERAL

I want to upgrade from my A1500 with 160 Mb hard drive/5 Mb of RAM. Do I go for an A4000/030 or do I get an A1200 and add the extras? If the latter is a better bet, which expansion should I go for? I need an expansion that will not only expand the memory of my A1200 but I also need a faster processor (25 MHz at least) and a hard disk. Secondly, are Commodore planning to release an AAA-based A1200? Also, are Commodore bringing out a CD-32 expansion for the A4000/1200.If so, how will it connect to the machine? Finally, I already have a Philips CM8833 Mk.2 monitor but I would now like to upgrade to a Commodore 1940/1942. Before I take the plunge, are Philips planning to release a competitor? Will it be soon?

Mr R Clarke Crosby
Liverpool

Which Amiga you buy depends entirely upon the sort of things you want to use the machine for. If you'll be doing a lot of video work involving 24-bit graphics and video cards, then the A4000/030 is a better bet due to its *big box* design which is similar to the machine you already own. For any other sort of work, however, you'll find the A1200 more than capable enough. Although it lacks the expansion slots of the A4000 series, a number of third party manufacturers have produced expansion cards that can expand the memory inside your Amiga and offer a faster processor all on one card. One such card is the excellent A1230 Turbo card from GVP which offers a 40 MHz 68030 and space for up to 32 Mbytes of 32-bit RAM. The A1230 is available from Silica Systems on ☎ 081 309 1111.

If you are upgrading to an AGA machine, buying a replacement monitor capable of handling the new **DBL** (scan doubled) screen mode is a very good idea. Commodore's own 1940 and 1942 monitors are very good but rumour has it that Philips are due to launch a new *Brilliance* monitor (nothing to do with the paint program of the same name) very soon. Rest assured that we'll report on it as soon as it is launched. ***JH***

VOICE OF THE BBC

BUYING

I know that you can get a hardware-based BBC emulator for the Amiga but I just don't have the money for one. I've looked but I can't find a software-based BBC emulator. I can't even seem to find one in amongst the public domain. Is there a PD BBC emulator available or even a commercial BBC emulator? Also, I know that there is a public domain 1.3 and 2.0 Kickstart emulator, but is there yet a Kickstart 3.0 emulator?

P.A.May
Camberley, Surrey

A hardware-based BBC emulator? I have to admit, that I've never seen such a device available for the Amiga! The emulator that you've probably seen is the Commodore BBC emulator that was written for the Amiga by Ariadne Software back in the days when Commodore were trying to push the Amiga into the classroom. I'm not sure whether this program is still available through Commodore but you may want to try them anyway. Commodore can be contacted on ☎ 0628 770088. Failing that, the emulator should be available from one of the mail order advertisers in *Amiga Shopper*. The retail price was £50, but I'm sure you will be able to pick it up for a lot less these days.

These Kickstart *emulators* that you refer to aren't actually emulators at all – all they do is to load a binary file containing the Kickstart file into memory and then the system pointers so that your Amiga is fooled into thinking that its Kickstart chip is actually somewhere in RAM. Although the 1.3 Kickstart program has unofficially been endorsed by Commodore (it was released to try and soothe some of the compatibility problems with older games), the 2.0 Kickstart program is highly illegal and you should therefore not use it. The chances of a Kickstart 3.0 version of these programs is very remote as 3.0 relies heavily on the AGA chip set which you do not have inside your A500. ***JH***

BOOKS FOR PROGRAMMING

BUYING

I am interested in programming in C and assembler language. I have a couple of basic books, and I have just ordered "Complete Amiga C". I would like to know what books are available that will deal with the more complex aspects of C and assembler. I would also like to learn how to do 3D graphics and texture mapping in both of these languages. Can you recommend any good books?

Morgan Harvey,
Walton, Liverpool

Since you have already got some very good books to introducing programming both of these languages on the Amiga, I would recommend a couple of non-Amiga specific books which deal with the actual languages themselves. It may be a good idea to buy the current *Amiga Rom Kernal Guides: RKMs* to help you understand the Amiga side properly. For programming in C, I'd recommend *The C Programming Language*, by Kernighan and Ritchie, the designers of the C language itself. It's currently available in the 2nd edition, covering the ANSI-C standard, and its ISBN number is 0-13-110362-8. This is an excellent book on programming good C, but assumes you know a

JARGON BUSTING

Assembly language **– the programming language which is native to a particular processor. Assembly language is written as a series of short words, known as mnemonics, translated directly into numbers for direct processing by the computer's micro-processor.**

Compiler **– a means of translating a program to render it understandable to the computer. A compiler translates the whole thing into machine code before it is run. The compiled program is generally much faster than its interpreted counterpart.**

ANSI C – a standard for the language, devised by the American National Standards Institute, which differs from some areas and clarifies others of the original definition of C given by Kernighan and Ritchie, the creators.

little about programming first, and should complement *Complete Amiga C* by Cliff Ramshaw (turn to page 84) very well.

For programming in Assembler, I would recommend *Programming the 68000*, published by Sybex, by Steve Williams. Its ISBN number is 0-89588-133-0. It is a superb introduction to programming in Assembly language, and thoroughly teaches the basics before getting carried away.

As for computer graphics and 3D things, you'll need to have a strong background in maths before you'll get very far, but assuming you do, I'd have a look at the computer graphics section in any major book-shop, as it's a subject studied at university, and you'll find a variety of different books on the subject. It's difficult to recommend one as I have not done too much of this myself, and it will depend on your skill in maths. ***TS***

AMIGA AND PC COMPATIBILITY

I own an A4000-30 with 4MB of RAM and a 120MB conner hard drive. I intend on taking AS level computer studies, for which I will be learning to program in 'C'. One reason that I have chosen C is that it is meant to be machine portable, so I can use it on both the school's 486 PCs and on my Amiga. I would be very grateful if you could answer some questions about this:

1.) Assuming the school's package is ANSI compliant, would code from DICE and SAS/C be compatible?

2.) How difficult is it using the same code on the PC and Amiga?

3.) There obviously must be some difference between code on the Amiga and PC. Would the statement "#include <stdio.h>" be the same on both machines, and would the construction of commands be different? I imagine that Amiga things such as intuition are not going to be portable, but how hard would it be to convert it?

4.) Is there anything on the PC like Intuition which would cause problems compiling PC code on the Amiga?

5.) Considering that I will be spending most of my time programming the PC, would *Amiga Shopper's* book "Complete Amiga C" be of any use? What other books would be useful, particularly regarding programming on the PC?

6.) Is C any harder on the PC, and is converting knowledge of C from the PC to the Amiga a matter of "un-learning" anything?

Ross McLoed,
West Kirby, Wirral

A set of most comprehensive questions! I shall attempt to answer a whole lot at once rather that individually. C is an interesting language, a lot of people program it *badly*. If you learn to program C properly, and write neatly and organise your code, converting it to run on another platform can be a breeze, particularly if you have kept system specific code grouped in one area. If you write in full ANSI compliant C on the Amiga, it should compile directly and run on any other platform which has ANSI C, not just the PC. However, there are subtle differences which can make programs not compile. For example, if you wrote a program on the Amiga, using only ANSI-C function calls, but you tried to open a file **ram:this_is_my_file**, then this would not compile on the PC, as filename structuring is different. If you use any Amiga specific code, such as library opening, graphics calls, dealing with windows and gadgets, then it will not compile on another platform. The same applies the other way, if a PC program is written in ANSI-C, but uses Windows 3.1 calls to open windows, then it will not compile on the Amiga.

You can make any conversion process much easier by taking all the functions which you are going to call which are system specific, and grouping them all in one module. If you're really clever, this module will contain some generic window and drawing functions, for example, and then you simply implement the module twice, once for the PC and once for the Amiga. Calling your routine **OpenAWindow(x,y,width,height)** would call **OpenWindowTags** on the Amiga, but when you use the PC module on the PC, it would call the windows equivalent. Code written in this way can be extremely easy to port, but is not the most efficient way of going around it.

If you write in only ANSI-C, and use only ANSI-C functions, your programs should work fine on the PC and Amiga. Files such as **stdio.h** contain ANSI functions, such as **printf**. There are a number of these header files, each containing a group of ANSI functions. What you really need is a good ANSI reference guide, listing all the functions you can use, and how to use them. I would recommend *The C programming Language*, by the actual designers of C itself, Brian Kernighan and Dennis Ritchie. You'll want the 2nd edition, ISBN number 0-13-110362-8. It is *the* reference guide to C, but it does assume a knowledge of programming in general. It should complement the *Complete Amiga C* book quite well. ***TS***

GRAPHICS GONE AWAY

I bought PageSetter 3 to produce a single-page A4 flyer on my floppy-based A500 Plus. My problem is that I cannot get anything to print on my Canon BJ-10sx bubble jet printer. I have followed all the installation instructions to install the driver, but when I attempt to print I get a message which says the printer driver is not graphics compatible. Is it the printer driver that is wrong, or have I managed to mess up the installation somehow?

Philip James
Otley, W Yorks

When you get a message saying that the currently selected printer driver is not graphics compatible, it almost always means you have selected a printer driver that is not graphics compatible. It sounds to me like you probably have the *generic* printer driver selected in **Printer preferences.**

When you installed the Canon driver you probably did so on to your Workbench disk. Following this you should have run the Workbench Printer preferences program and selected the driver named CanonBJ5-230, and then saved that as your preference. After this, every time you boot from that Workbench disk, CanonBJ5-230 is the driver that will be loaded when you attempt to print.

If you have already installed the driver on to the *PageSetter 3* disk (enabling you to boot from the *PageSetter 3* disk instead of Workbench), again you must run the **Printer preferences** program after installing the driver, select the Canon driver, and finally save those preferences on to the *PageSetter 3* disk. ***JW***

OBJECT ORIENTED C

I have been thinking of learning about object orientated programming and wish to purchase a language compiler to do so. C++ is the obvious choice, could you tell me the memory requirements needed for the Lattice and Comeau compilers?

However, I have never really liked the C school of languages. Recently I noticed a textbook on Modula 3 in a bookshop which could suit me. I wondered if you knew of anyone who is producing this language on the Amiga? I know that someone produces an Oberon compiler but from what I have read this is not a full object orientated language, just a halfway house.

Mark Rogers
Reading, Berkshire

The latest and greatest C++ compiler for the Amiga is the *SAS C++ 6.5*. Information about the availability and prices of this can be found from HiSoft, the UK Distributors, who are on 0525 718181. In order to work with any large C compiler, particularly C++ you really need several Mb of memory and a hard drive. Programming in C seriously from floppies is pretty much impossible except with compilers such as DICE. If you are going to get a C++ compiler, I seriously recommend you look at the SAS C package which is excellent value and contains good documentation, and thorough after sales support.

Modula-3 has not been widely accepted. There are no Modula-3 compilers for the Amiga. Modula-3 was quickly replaced by Oberon, after extensive research at ETH in Zurich. Oberon-2 is the current version. After a series of meeting that originated in the UK last year, a standard for Oberon-2 compilers (known as the *Oakwood Standard*) has been agreed, and the happy news is that there should be total consistency between compilers running on all computers.

We have to make distinction between Object Orientated systems and Object Orientated languages. The Oberon system, running on Ceres workstations, is a fully object orientated environment, like a SmallTalk system. Oberon-2 is an OOP language that will compile and run on any system. It's OOP because it has inheritance and

polymorphic procedures bound to base types and their extensions. Bindings are dynamic (they are not know until run-time). It has complete data-hiding and modularity,so it's very appropriate for big, multi-programmer projects. Oberon is available on all major computer platforms, including the Amiga. Oberon also has a very OOP concept of type-inclusion for numbers – there is no need for any cast for a number that is equal to or greater than another number in the hierarchy. See *Amiga Shopper* (April 1994 – issue 36) edition for a description of Oberon-2 by Jim Hawkins, and a complete demo version of the Extacy Modula-2/Oberon to C translator. Many thanks to Jim for supplying a lot of the information in this reply. ***TS***

COMMODORE'S INCLUDES

CODING

I am writing to you about the Commodore Includes and Autodocs which you first recommended to your readers in the April 1993 issue of Amiga Shopper. I sent off a cheque, and received a letter from Commodore saying that as I had an A1200 I would need to become a registered developer and that this would cost 21.25 plus 10 pounds for the Workbench 3 includes. I sent off a letter and a cheque, and despite further letters and telephone calls I have received no reply.

I am writing to you wondering whether this has happened to any other readers, as at the moment I am in the frustrating position of desperately wanting to start programming but not being able to because of Commodore. How do they expect new programmers to stay with their machines if they treat us like this? I have enclosed copies of my letters to Commodore.

Scott Hughes,
Toxteth, Liverpool

This is most unfortunate, but it does seem like you have been a victim of a misunderstanding rather than any purposeful effort to be awkward by Commodore. The Workbench 3 **includes** and **autodocs** were not available to anyone other than registered developers till November 1993. Until that point, the only **includes** available were those with the *Native Developers Upgrade Kit*, which contained the 2.04 information and examples and was available to everyone.

If you specifically asked for 3.0 includes, Commodore were right in pointing out that you did need to become a registered developer to see these, and the extra money you paid covered the period of time that you would be registered. I have passed your information on to Commodore, who say that any backlogs in dealing with correspondence have been cleared. You do not appear to actually be a registered developer so I would recommend that you write again to Sharon McGuffie at Commodore, explaining what has happened and enclosing copies of your letters and this matter will be resoved as quickly as possible. ***TS***

USING A PC MODEM

COMMS

1.) Is it possible to connect and use a PC modem on my Amiga 1200?
2.) Would I need a different cable?
3.) Would it just be a matter of using a program like NComm and away I go?

Mr J.S.Smith
Sheffield, S.Yorks

Generally speaking, external modems can be used on any machine platform. That is the main reason for them being external – you can simply plug them into any computer you wish to use them with. There should also be no problems in using a standard serial cable as supplied with the modem. Amazing as it may seem, it really is just a matter of getting the terminal software (and *NComm* will fit the bill nicely) and away you go. ***DW*** AS

FILL IN AND GET US TO ANSWER YOUR QUESTIONS

If you send in a question for the Amiga Answers experts, please fill in and include the form below (or a photocopy if you don't want to cut up your magazine). And please also make sure that you include all the relevant details – version numbers of software and so on – so that we have the best chance of helping you.

Send your form and question to: Amiga Answers, *Amiga Shopper*, 30 Monmouth Street, Bath, Avon BA1 2BW. Sorry, but we cannot reply personally to any questions – even if you include an SAE.

Name: ____________________

Address: ____________________

____

____

Your machine:

A500 ☐ **A500 Plus** ☐ **A600** ☐ **A1000** ☐ **A1200** ☐

A1500 ☐ **A2000** ☐ **A3000** ☐ **A4000** ☐

Approximate age of machine: __________

Kickstart version (displayed at the "insert Workbench" prompt)

1.2 ☐ **1.3** ☐ **2.x** ☐ **3.x** ☐

Workbench revision (written on the Workbench disk)

1.2 ☐ **1.3** ☐ **1.3.2** ☐ **2.04/2.05** ☐ **2.1** ☐ **3.0** ☐

PCB revision (if known). Do not take your machine apart just to look for this! __________

Total memory fitted (see AVAIL in Shell for Workbench 1.3) __________

Chip memory available (see AVAIL in Shell) __________

Agnus chip (if known) __________

Extra drive #1 (3.5in/5.25in) as DF__: Manufacturer __________

Extra drive #2 (3.5in/5.25in) as DF__: Manufacturer __________

Hard disk: ____Mb as DH__: Manufacturer __________

Extra RAM fitted – type, size in Mb and manufacturer __________

Details of any other hardware which could help us to answer your question:

____

____

____

____

Now, use this space to describe your problem, including as much relevant information as possible. Please continue on a separate sheet if necessary.

____

AS 37

The Amiga Shopper reader survey

Win £25 in cash! Turn over the page to find out how.

Make your opinions known. To make the best possible magazine for serious Amiga users, we need to know what serious users expect from us. Please take the trouble to fill out this form – we need your input. Make your opinions known, and we'll make sure they count.

You've probably noticed a good few changes in *Amiga Shopper* this month. Why? Because people like you have asked us to make them. We're going to keep on making changes, too, until we're convinced that we are producing the best possible magazine we can, every month.

So naturally we need to know what you think about the magazine as it stands. We need to know which articles you find invaluable, and which you maybe find a bit boring. We need to know about the kinds of equipment you've got and use so we can target our tutorials more accurately. We need to know what you think we ought to be covering that currently we're not.

All of this information will help us ensure that *Amiga Shopper* continues to be the best magazine there is for the serious Amiga user. So, if you've got a spare five minutes and a stamp, why not help us to mould the future?

Most of the questions here are in one of two forms. A square box – '☐' – means that we only want you to tick one of the presented options; a circular box – '○' – gives you the freedom to tick as many responses as you bloody well please.

You'll also notice that the questions are all numbered. Don't worry about this, it's just to help us when we come to analyse the data.

So, if you want to claim your Amiga benefits, on with the questions…

YOU AND AMIGA SHOPPER

1 How did you buy this issue of *Amiga Shopper*?

a☐ Delivered by newsagent
b☐ Reserved by newsagent
c☐ Planned visit to newsagent
d☐ Subscription
e☐ Just saw it in the shop

2 Approximately how many issues of *Amiga Shopper* have you read since its launch?

____

3 How many other people, besides yourself, read your copy of *Amiga Shopper*?

____

Overall, how do you rate (out of 10) *Amiga Shopper* compared to other Amiga mgazines which you read regularly?

4 *Amiga Shopper* ..../10
5 *Amiga Format* ..../10
6 *Amiga Computing* ..../10
7 *Amiga User International* ..../10
8 *Amiga World* ..../10
9 *CU Amiga* ..../10
10 *Amiga Power* ..../10
11 *Amiga Pro* ..../10

YOUR FAVOURITE BITS

This is the best part, where you get to tell us which sections of the magazine you like, and which you'd rather not see so much of.

Just let us know, for each subject listed, whether you'd like to see less, the same or more space devoted to it each month. (And please don't tick more for everything!)

	Less	Same	More
12 News	a☐	b☐	c☐
13 Letters	a☐	b☐	c☐
14 Amiga Answers	a☐	b☐	c☐
15 Video and Graphics	a☐	b☐	c☐
16 Communications	a☐	b☐	c☐
17 AmigaDOS	a☐	b☐	c☐
18 DTP	a☐	b☐	c☐
19 AMOS	a☐	b☐	c☐
20 PD & shareware	a☐	b☐	c☐
21 Competitions	a☐	b☐	c☐
22 C Programming	a☐	b☐	c☐
23 ARexx	a☐	b☐	c☐
24 Product Locator	a☐	b☐	c☐
23 Interviews	a☐	b☐	c☐

Okay, that's the regular columns dealt with. Now we can move on to talk about how often you'd like to see certain types of articles. If you have no interest whatsoever in a subject, then tick **Never.** If you live for that subject, tick **Every Month** (unless you're a masochist), otherwise pick between **Sometimes** (roughly every four to six months) and **Frequently** (every other month or so).

	Never	Som	Freq	EvMo
24 Single product reviews	a☐	b☐	c☐	d☐
25 Comparative product reviews	a☐	b☐	c☐	d☐
26 Graphics tutorials	a☐	b☐	c☐	d☐
27 Music tutorials	a☐	b☐	c☐	d☐
28 DTP tutorials	a☐	b☐	c☐	d☐
29 Video tutorials	a☐	b☐	c☐	d☐
30 Beginners' progging tutorials	a☐	b☐	c☐	d☐
31 Advanced progging tutorials	a☐	b☐	c☐	d☐
32 Tutorials based on particular programs	a☐	b☐	c☐	d☐
33 Tutorials based on particular hardware	a☐	b☐	c☐	d☐
34 General interest features	a☐	b☐	c☐	d☐
35 Show reports	a☐	b☐	c☐	d☐
36 Foreign news	a☐	b☐	c☐	d☐
37 Book reviews	a☐	b☐	c☐	d☐
38 CD ROM	a☐	b☐	c☐	d☐
39 New PC/Mac software for Amiga emulators	a☐	b☐	c☐	d☐
40 Cover-mount books	a☐	b☐	c☐	d☐
41 Cover disks	a☐	b☐	c☐	d☐
42 Hardware projects	a☐	b☐	c☐	d☐
43 Program listings	a☐	b☐	c☐	d☐
44 Gossip and rumours	a☐	b☐	c☐	d☐
45 Comment and opinions from industry figures	a☐	b☐	c☐	d☐

WHY DO YOU LIKE US

46 Which of the following are reasons why you buy *Amiga Shopper*? (Go on, be a devil – tick more than one reason if you like.)

a○ For the hardware reviews
b○ For the software reviews
c○ To get the best prices from adverts
d○ To learn how to use my Amiga
e○ For an interesting read
f○ It's cheap
g○ To buy through mail order advertisements
h○ It's the only one with no games

YOU AND YOUR AMIGA

This'll help us to know what Amiga you have,

which operating system you're running and what extra kit you use, doncha know?

47 Which model of Amiga do you own?

a○ A500 b○ A500 Plus c○ A1000
d○ A1500 e○ A2000 f○ A600
g○ A3000 h○ A4000/030 i○ A4000/040
j○ A4000T k○ A1200 l○ None

48 Which version of Workbench are you running (if you have more than one, just list the highest)?

a□ 1.2 b□ 1.3 c□ 2.04/2.05
d□ 2.1 e○ 3 f○ 3.1

Do you own or intend to buy in the next six months any of the following hardware?

	Own (**49**)	Intend to buy (**50**)
Monitor	a○	a○
Printer	b○	b○
Sound sampler	c○	c○
Video digitiser	d○	d○
Genlock	e○	e○
Hard disk	f○	f○
Graphics enhancer	g○	g○
Emulator	h○	h○
Floppy disk drive	i○	i○
Modem	j○	j○
Accelerator	k○	k○
Extra RAM	l○	l○
CD-ROM drive	m○	m○

Now to software. From the following list tick the types of packages that you own and **use regularly**. If you've actually **bought** the package (as opposed to, say, getting it on a cover disk or it being bundled with your Amiga when you bought it) then please tick the same product in the right-hand column, too.

	Use	Bought
51 Word processor	a○	b○
52 Spreadsheet	a○	b○
53 Database	a○	b○
54 Painting program	a○	b○
55 Drawing program	a○	b○
56 DTP	a○	b○
57 Comms program	a○	b○
58 Sampler	a○	b○
59 Sequencer	a○	b○
60 Prog. language	a○	b○
61 Multimedia authoring system	a○	b○
62 Image processor	a○	b○

YOUR FUTURE PLANS

63 Roughly how much do you expect to spend on hardware in the next six months?

a□ Nothing
b□ £1–£99
c□ £100–£199
e□ £200–£500
f□ More than £500

64 Roughly how much do you expect to spend on software in the next six months?

a□ Nothing d□ £200–£500
b□ £1–£99 e□ More than £500
c□ £100–£199

THAT ABOUT WRAPS IT UP

Just two more questions to go – hey, at least it's not as bad as a DHSS form.

65 How old are you?

.....

And finally... The details in this questionnaire are and will remain, of course, confidential. If you'd like to hear about special offers, subscription offers and the like, then put down your name and address in the space below (if you'd rather not give us your address, that's fine – we're still keen to listen to what you have to say.)

Name..

Address ....

....

....

....................................Postcode ....

And that's that. Easy, wasn't it. Now cut out this page, pop it in an envelope and send it to:

Reader Survey
Amiga Shopper
Future Publishing
29 Monmouth Street
Bath BA1 2DL

Thanks for your time. AS

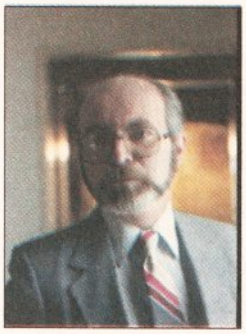
TELL US JUST WHAT YOU THINK

Win £25 in cash!

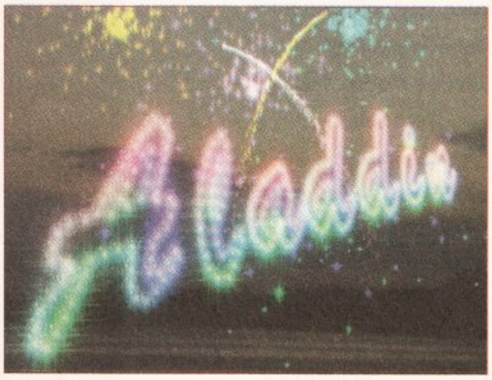
All of those numbered questions you've answered are for our spreadsheet. They're designed so that the data will be easy to enter and to analyse. That's all very well, but there's no substitute for the human voice. That's why we've reserved this space here for you to tell us, in your own words, just what you think of *Amiga Shopper* and, if you like, how you think it can be improved. We'll give a prize of £25 each to those suggestions for improvement which we think are best. Away you go...

Straight Talk

R. Shamms Mortier meets up with Greg Gorby, the author of the sensational Amiga rendering package, Aladdin 4D.



Greg Gorby found the software needed for his artwork inadequate and stifling, so he created...



...Aladdin 4D, a superb tool that is specially made to let you produce individualistic art.



The result is an enormously flexible rendering and modelling environment that supports the artist.

The purpose of this interview series is to make Amiga users and developers aware of the opinions, attitudes, and habits of those developers on the cutting edge of Amiga technology, thinking and planning. It is hoped that both our interest and our own creative abilities will benefit as a result. This first interview in the series was with Mr. Greg Gorby, the CEO of ADSPEC Programming in Salem, Ohio. Greg is the author and main programmer of the Amiga 3D/4D package, *Aladdin 4D*. If there are specific individuals you would like to see interviewed for this series, or questions you would like asked, please write me, in care of *Amiga Shopper*, at the usual address.

What is your history with the Amiga?
In early 1986, I walked into a small computer store in Warren, Ohio. I wasn't interested in computers, as such,.but sitting in the back corner of this little store was a brand new Amiga 1000. On the screen was Eric Graham's *Juggler* animation. I stared at it for a long time. You see, I had always viewed computers as just a new kind of pencil. The artist or writer has a very personal connection with his tools. The pencil and paper is much more personal than the distance of the technology of the computer. Here, however, was a very good example of a piece of fine art on a computer screen. It was possible to use it to create real art. A few days later, I set up my first Amiga and began to work.

How did you acquire your programming expertise?
I started in 1986, bought whatever books were recommended and just did it. It wasn't particularly hard, just took a lot of time. If your readers are thinking of learning to program I would suggest this: Don't set your goals too low, and don't underestimate the amount of time it will take to get there! You will get there if you want it bad enough.

When and how did Aladdin 4D come about?
I purchased most of the software that was available at the time for the then new Amiga. I got a couple of the early paint programs, and the current 3D software, (*Sculpt*, *Silver*, and *Videoscape*). I soon found that there were only a few ways to *paint*. Say you have a canvas and oils in front of you, and a big jar of old favourite brushes and knives. As you work, you can manipulate the brush/knife in an unlimited number of ways. You can **jab**, **grind**, **brush**, **flow**, **spatter**, **cut**, **scrape**, and on and on. There is also the thickness of the paint to use. Additionally, you can **layer**, or **glaze** over, previous layers, for depth and to obscure. The problem was that the tools in the paint programs tended to support a world of clean, clear values, where everything was open to man's understanding – the view of an engineer. I was trying to create art that said no matter how much we know, we will never be able to solve the important questions, and the tool was preset to defeat me.

The paint programs were not as bad as the 3D software however! Here I found the software engineer's ideas even more overwhelming. If you look at a painting by the Dutch painter, Vermeer, you see light being used to support a view of reality that says man is in control. Light is used to enhance the solidness of the objects. It has a knowable source and behaves in an extremely logical manner. Now look at a painting by Rembrandt. The light is just the opposite. As a matter of fact it seems to radiate from the persons in the paintings. It has no knowable source, and behaves in an illogical manner. The Vermeer is an engineer's view, and the Rembrandt belongs to that of the religious philosopher. Can a software developer really decide that Rembrandt was wrong? I needed tools to create my work that did not carry the world view of the software engineer in so dominating a manner that it made it nearly impossible to present my own views.

So you needed a 3D program that supported your world views?
Yes. Not just my views as they were then, but one that was robust enough to support my changing views. I looked at a lot of the images and the rare animations,and when I did I found myself saying "That was created in Sculpt", or "That was created in Silver". I wanted to be able to look at the images and say "that is a Smith" or "that is a Jones". I had a choice, I could either go back to traditional media or wait until a program was written that was robust. I was impatient and so decided to try to write one myself.

Do you think you were successful in making the program robust enough to present different world views and unique creative artistic approaches?
Yes. Much more can be done, but I have looked at some of the animations *Aladdin-4D's* users send in, and one thing stands out. When you see a new animation, you can tell who made it if you have seen his or her work before! Some have such a unique look that they look as though they were generated by hand.

Just what did you do to allow the individual artist's views to be expressed?
That was the hard question. And it came up for every decision in the program. Let's take texturing, for example. I needed to allow the artist to be able to create textures for the objects that could portray a view anywhere from a clean, predictable advertising image to a murky and unknowable, changing surface, to a softly defined, ethereal presentation, and on and on. We decided to create the textures as a list implementation. This way the artist could layer the textures onto the objects to achieve just the result he wants. We also allow the textures to be not just procedural or bitmap, but mixed if desired, and each to be one of several types, including **normal**, **bump**, **illumination**, and so on. And to create even more of an open, anything-is-possible environment, the textures can change all of their attributes over time, as a whole, or even just one of the layers. We have taken this approach on every other feature of the program. The result is an enormously flexible rendering and modelling environment that supports the artist.

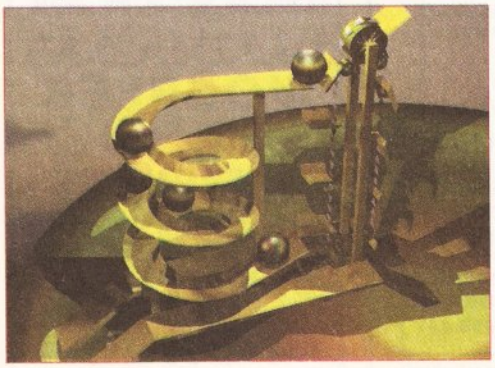
As far as the newest of *A4D's* tools are concerned, "Fountain" seems to be the most awesome. Can you describe it for our readers in some detail as to use and options?
Fountain is one of my favourites. I think it is at least as innovative as our **Gas** objects, and I have spent some wonderful creative hours just playing with it. First of all though, let me talk about our lens flares. I wanted to create a way of allowing a lens flare that was non-mathematical. A lens flare is very predictable. It is a result of a bright light source in the scene reflecting between the components of the camera lens. The flares from a single source usually line up through the centre of the lens. I could have written the code so that a lens flare was just that, then given several options

for the number of flares, their size and shape, colour, strength, etc. Instead I decided that the artist should be able to use any image for a lens flare he wanted. I also decided he should be able to place the flares anywhere he wanted, and have them act independent from lights. The flare should be able to morph between images, and change all of its attributes over time as well. This is just what our flare objects are and do. User response has been absolutely tremendous.

Fountains are basically a particle system. What I wanted was a way of indicating a point in space that would emit particles. Control should be given over particle creation/deletion rates, particle lifetimes, particle behaviour over their lifetimes, colour level, strength, etc. I quickly reviewed any literature I could find on particle systems. What I found was that particle systems *clone* existing 3D objects a set number of times. These *particles* are then rendered with the rest of the 3D objects in the drawing. Although this results in a good image, there were three problems with the standard ways to do particle systems: first, they require *lots* of memory to do, say 50 particles, let alone the 2000 or 3000 minimum I would need to do a galaxy; second they require *lots* of rendering time – some of the big systems were taking days to render each frame; third, the results were *hard edged* since an actual 3D object was used as the seed particle. I took a new approach. Instead of a 3D object as the seed, the particles would be points in space where we could attach an image. This means the memory is small, the rendering is fast and the particles can be anything. The system works unbelievably well!

Couldn't you use *A4D's* new Instancing capabilities to do a "standard" particle system?
Yes and no. **Instancing** is actually meant to create regularly spaced and/or rotated *clones* of an object. You can, say, create a little tin soldier, then instance it 20 or 30 times to create a marching troop. You can also create one blade of a jet engine, then instance the other 50 or 80. One of the really interesting things about instancing is that path hierarchies can be instanced intact. So you can do a little bird, flapping its wings and following a path, then instance the whole thing, and end up with a *flock*. **Time slicing** can be performed, so the birds are flapping their wings at different times, too. It is also easy to have several objects following each other, like train cars, or balls rolling down a spiral chute.

Why is the "open endedness" of the new *A4D* so important, and what support is given to developers to take advantage of it?
As we work on a new version of the program, we develop new tools. Unfortunately, we could not distribute these new tools, since it would require distributing complete new versions of the program. So we opened the editor of the program so it could load tools from disk. We developed a way for the tools to interact with *Aladdin 4D* in real time. Now when we develop a new tool, we can just send it out in our newsletter. This is working out very well. Our January 94 newsletter had 4 new tools in it: **Explode** allows poly nets to *explode*. **Align** allows text (or other objects) to be automatically aligned along a polygon. **Centre** allows objects or even individual polys to be interactively centred (or uncentred) on specific axes, and **Twist** allows objects to be twisted, using c-spline (our control splines) to control the amount and position of the twist. The other reason the **editor** was opened up was so a user could write his or her own tools. (We recommend writing in C). We encourage users who write tools for the program to distribute them with source if they decide to make them public domain, so other users may modify them.



'Instancing' enables you to have objects follow each other, like balls rolling down a spiral chute.

What Amiga boards does *A4D* support at the moment, and what ones are being planned?
As of the 3.0 release (December, 1993) we support standard Amiga modes, HAM-8, DCTV, Resolver, Retina, Firecracker, and OpalVision. We have been contacted by manufacturers of several of the newer boards and will put in support for them as soon as we possibly can.

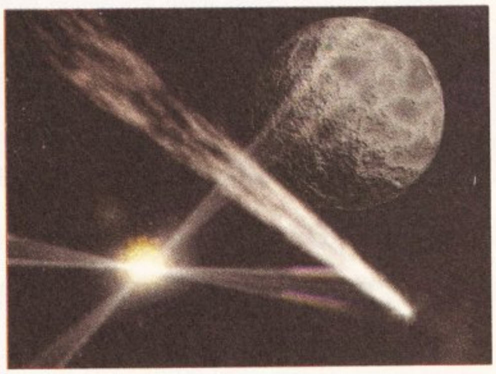
What's *A4D's* relationship with the PAL standard?
The European and American versions of *Aladdin 4D* are identical. To switch to PAL or NTSC, you choose a menu item and the program toggles. There is also a tool type you can change and save with the icon so it starts up in one or the other mode.

What do you see as the most promising developments on the horizon for the Amiga and why?
Right now, the most exciting thing I can think of, besides the constant progress of the software, is the possibility that we are on the verge of getting true parallel processing for the Amiga. The WarpBoard manufacturers have contacted us and asked if we would write *Aladdin 4D* for it. We gave an enthusiastic YES! If this board does half what it is supposed to, it will give the Amiga an edge that no other platform currently has in two areas, network sharing of tasks, and blazing speed at a reasonable cost. We are waiting on our board now and will begin development as soon as it arrives. I have always seen true parallel processing as the future of not just the Amiga, but all computing. The interim accelerators are just stopgap measures until it arrives, and are much too expensive unless you are a production house currently selling a lot of rendering. When the WarpBoard or its equivalent arrives, it is critical that it is open to all developers.

The most unpromising developments I've witnessed are developer sponsored, and Commodore sponsored *bundles*. I don't think the idea of an accelerator, graphics board, or whatever that is bundled with a piece of software is good for the Amiga or the user. As a user, I want to choose which software I use, and I want to choose which hardware I use. I don't like the developers trying to direct my choices by bundling, and increasing the price of the hardware by sticking the software with it. I have rejected offers to bundle *Aladdin 4D* in the past, as a dedicated hardware render package, expressing these reasons. I would like to commend the developers of the WarpBoard for having an



'Fountains' enables you to have your grandma's face for a flare and is at least as innovative as...



...the 'Gas Effects' shown above. Spend many wonderful, creative hours just playing with them.

open ended attitude. We are eagerly waiting to work with it.

What kind of equipment do you use to record the tutorial animations you distribute?
I use an Amiga 4000 with 18 Mb, an OpalVision board and a Sony EVO-9650 Hi8 VCR. I single frame the animations directly from *Aladdin 4D* to tape, using the framescript feature of the program. I then edit the Hi8 tapes to SVHS for a final master. Often I single frame the images to hard disk in JPEG format. I then load the sequence into *Aladdin 4D* as a bitmap texture background, and render it as an Opcode 5 DCTV anim for preview and to show my friends. I could, of course, just render straight to an Opcode 5 anim in DCTV or standard HAM or HAM-8, but putting JPEG frames on the drive allows me to change the resolution of the anim without re-rendering, and to put it to tape at full resolution if I decide to.

What other Amiga products do you consider vital in your own work (hardware and/or software)?
I use *Directory Opus* for disk organising, *ADPro* for image processing, *DPaint*, *Brilliance* and *OpalPaint* for painting, several word processors, *Professional Page/Professional Draw* for publishing. I do not mean to say that these are the best choices. Several of my friends use different programs in each category because that's their choice. (I use *Aladdin 4D* for 3D rendering/animation). AS

WHAT
Aladdin 4D – £213
WHO
ADSPEC
WHERE
Hobbyte Computing, 10 Market Place, St Albans, Herts, AL3 5DG.
☎ 0727 856 005/841 396.

Find your local group

This issue: user groups in the South and Midlands.

SOUTHEAST AND EAST

1–1 Amiga Club Postal software, ideas etc. SAE plus blank disk for details. Contact Peter Duckett, 11 Avon Close, Addlestone, Surrey KT15 1JO ☎ 0932 855834 after 8pm. Membership free.

Access Information Technology, graphic, music, utilities, games, DTP&CAD applications. Meets in North London once a week. Membership £5. Contact Darren, 20 Highfield Rd., Winchmore Hill, London, N21 3HA. ☎0956 229729

Agnus PD library, BBS, advice from Amiga experts. Group meets the last Thursday of every month. Contact Philip Worrel, 115 Brocks Drive, North Cheam, Sutton, Surrey SM3 9UW.

AmigaBASIC club Help for beginners and experts, plus free PD software. Membership £15. Contact: Imran Ahmad, 15 Weybridge Rd, Thornton Heath, Surrey CR7 7LN ☎ 081 689 9102.

Amiga Club Newsletter, disks, PD etc. £10 membership. Send SAE for details to Imp, 190 Falloden Way, Hampstead Garden Suburb, London NW11 6SE ☎ 081 455 1626.

Amigaholics Club Disk magazine covers PD, programming, music, art, DTP, and more. Free membership. Meeting at Millers Well, Barking Rd., East Ham, London monthly. Contact Kevin Bryan, 49 Coutts House, Charlton, London SE7 7AS ☎ 071-580 2000 Ext 240.

Amiga Mania Bi-monthly publication (28+ pages). Public domain, licenseware, bargains, classifieds, free advice, free gifts, free disks. Annual membership £12. Contact D Cryer, 88 Blackbull Rd, Folkestone, Kent CT19 5QX.

AmigaSoc PD, tips, cheats, MIDI, programming, disk magazine, all welcome. Free membership. Contact Neil Cartwright, 1 Chenies Way, West Watford, Herts. WD1 8UW. ☎ 0923 248483.

Amiga Witham Users Group 85 Highfields Rd, Witham, Essex CM8 1LW. Tips and BASIC programs. K Anderson ☎ 0376 518271.

Amiga Zone Bi-monthly publication with reviews, PD, AMOS, Workbench, news, coverdisk. £2 inc P&P, or £1.45 without disk. Contact Gareth and Raymond, 7 Swindon Road, Horsham, W. Sussex RH12 2HE.

APDEG (Amiga Public Domain Exchange Group) Laser printing service, free PD, advice service, util disks for members, PD swaps. Contact Richard Brown, APDEG, 18 High Street, Mundesley, Norfolk NR11 8AE ☎ 0263 720868. Membership fee £6 a year.

Beaconsfield and District CC Contact Philip Lishman 27 Russell Court, Chesham, Bucks ☎ 0494 782298. Meetings at St Michaels Hall, St Michaels Green, Beaconsfield 7.45–9.45pm. Programming, gaming swapping PD, having fun. Membership £10 for 6 months.

Camberley User Group Lectures, competitions, advice, meetings, free membership. For more info contact F Wellbelove ☎ 0252 871545.

Cambridge Sixty-Eight Group (CASE) SuperBasic, QDos, QL Emulator and QL software support on Amigas (serious users only). Meets 7.30pm, second Monday of each month, at Robinson Hall, Lolworth, Cambridge. Contact EPL Rowell, 347 St Neots Road, Hardwick, Cambridge CB3 7QL ☎ 0954 210692.

Cheapo PD Club Non-profit-making postal PD, newsletters, advice. Membership £5. Contact Jason Meachen, Ivy Cottage, Chapel Road, Beaumont, Clacton, Essex CO16 0AR.

Chic Computer Club Full details with an SAE to STAMP, Chic Computer Club, PO Box 121, Gerrards Cross, Bucks. For info contact Steve Winter ☎ 0753 884473.

Computer Club A 16-bit club dedicated to being computer enthusiasts. Membership costs £15 per year. Contact 16 Laton Rd, Hastings, East Sussex ☎ 0424 421480.

Digital Disk Amiga, disk magazine with music, modules, reviews, tutorials, PD. £2.50/issue. Contact David Cowell 70 Donald Drive, Chadwell Heath, Romford, Essex RM6 5DU, ☎ 081 590 2546.

Enfield Amiga club Meet, swap, competitions, help for new users. For info contact Sean Clifton 32a Hoe Lane, Enfield, Middx ☎ 081 8042867

Hanover Computer Club DTP, PD, games, help, monthly meetings, beginners welcome. Free membership. Contact Colin Jones,33 Southover Street, Brighton, Sussex BN2 2UD ☎ 0273 602834.

Hermit Computer Club Hardware help and information, program swapping. Meetings 7-10pm, Mondays. Membership £3 per term, 50p per night. Contact John Maynard, Hermit Centre, Shenfield Road, Brentwood, Essex CM15 8AG ☎ 0277 218897.

Hertfordshire Amiga Users Group for beginners and experienced users. With BBS, PD library, programming, demos. Meets third Weds of each month at St Thomas Church Hall, Langley Rd, Watford. Contact Keith Alexander ☎ 081 421 1784.

Kent Youth Computer Group Computer fair visits, video and DTP work, monthly newsletter. Membership 40p per month. Meetings at the North Youth Centre, Thursdays 7–10pm. Contact Jim Fanning North Youth Centre, Essella Rd, Ashford, Kent ☎ 0233 629804.

Luton Amiga Users Group Help and advice, exchange of games and PD, fortnightly disk newsletter. Beginners welcome. Membership £5 per year. Contact Dave ☎ 0582 502806.

Magic Windows Hardware projects, programming, PD, help and advice on all topics, beginners welcome. For more info send SAE to Frame, 26 St Benets Road, Stalham, Norwich, Norfolk NR12 9DN.

Not the Night requires new members, coders in Assembler or C, GFX artists and musicians in any format (MED, PC/ST/NT etc). Beginners welcome. SAE for form to Andrew, 8 Lanark Road, Ipswich, Suffolk IP4 3EH. Membership £1.50 a year.

PD for Beginners Monthly mag on a disk + free PD progs. Contact M Macias, 48 Lavender Grove, Mitcham, Surrey CR4 3HU. Membership £3.60 for two disks (inc P&P).

Robotronix Amiga Club Bi-monthly newsletter, tips, cheats, programming support, advice. Send SAE for details. Contact P Symonds, 36 Century Road, Cobholm, Gt Yarmouth, Norfolk NR31 0BX ☎ 0493 667161, Membership £15 a year.

Rye Amiga Group Regular newsletter, swap/meet at the Rye Community Centre. Contact Oliver Campion, 71 The Mint, Rye, E Sussex TN31 7EW ☎ 0797 222876.

Sensible magazine: reviews, tips, news, loads more. 50p or 20p + SAE. Contact M Street, 158 Hadleigh Road, Leigh-on-Sea, Essex SS9 2LP.

Sittingbourne Co-op Amiga Club, newsletter, PD library, postal membership, video work. Meets mondays 6–9pm at the Regis Suite. Membership £5. Contact Andy, The Bungalow, Keycol Hill, Newington, Kent ME9 8NA ☎ 0795 842608.

Southend Team Music, PD. Free membership. Contact Scotty, 52 Prince Avenue, Southend-on-Sea, Essex SS2 6NN ☎ 0702 333974.

The Crumblies. Video/Amiga applications, exchange of info, help, ideas. Contact Frank Barron 2B The Wend, Coulsdon, Surrey CR5 2AX. ☎ 081 668 7695

The Swop Shop Club, newsletter with ad-service to swop hardware and software. £4/year. Contact Ian Prentice 152 Lymington Avenue, Leigh-on-Sea, Essex SS9 2AN ☎ 0702 710267.

Twilight Advice on hardware and software, Fred Fish PD. Free membership, disks 50p each. Contact 13 Mavis Court, Ravens Close, London NW9 5BH.

SOUTHWEST

Amiga Users Klub (Bodmin) Amiga computer workshops every Friday 7–9pm. Please write first with SAE – no stamp, no reply. Contact Jack Talling, 1 Windsor House, 19 Castle St, Bodmin, Cornwall PL31 2DX. Membership free (club now in fifth year).

Ami-Info Interested in the serious side of the Amiga? Then send an SAE for details to Paul Caparn, Homeside, Higher Warberry Road, Torquay, Devon TQ1 1SF.

Avon Micro Computer Club Desktop video, DTP, office applications and entertainment. Meet UR Church Hall, Muller Rd, Horfield, Bristol 1900– 2230, first and third Sat eve monthly. Contact Roger or Bob, 95 Downend Rd, Horfield, Bristol, ☎ or Fax 0272 311642. Membership £5 PA, then 50p per visit.

Bournemouth Amiga Club Problems, fun, social beginners welcome. Free. Contact P Chamberlain, 36 Homeoaks, 30 Wimborne Road, Bournemouth, Dorset BH2 6QA ☎ 0202 296714.

Bristol Amiga Club Disk-based monthly magazine: PD, reviews, news, help service, utilities, games, disk finder service, music specialists. 3 Parkstone Avenue, Horfield, Bristol BS7 0BX. Membership £10 a year.

Charlies PD, Swapping PD, send list of disk. Contact Charles Read, 10 The Cedars, Tilehurst, reading, Berks RG3 6JW.

CHUD Free membership. Send SAE for details to Mr M Sellars, 103 Newward Rd, Bulford, Salisbury, Wilts SP4 9AH ☎ 0980 33154.

EmuSoft PD, Utils, starting up help and advice to all users and programmers. Contact Nalpex, 48 Longhandstones, Cadbury Heath, Bristol BS15 5AP. Membership free.

Exeter 16-bit User Group Programming. Andrew Deeley or Phil Treby at 25A Gloucestershire Rd, Exwick, Exeter, EX4 2EF. Meeting every Wednesday 7pm. Membership £6 per annum.

Game Swap Club Swap original software and hardware. Membership £3. Contact Ade Ajidahun, St Andrews House, 125 North Road, St Andrews, Bristol BS6 5AH ☎ 0272 240399

MIDLANDS

Aden PD Advice and AMOS for beginners, cheats. Free membership. SAE plus disk to Den Rounding, 8 Primrose Lane, Miami Beach, Trusthorpe Road, Sutton-on-Sea, Lincs LN12 2JZ.

BR & CJ Computer Club Regular disk mag packed with tips, reviews of games and serious software, game cheats database, demos and utils, very large PD library. Contact B Robinson at 23 Fairway Rd, Shepshed, Loughborough, Leicestershire LE12 9DS ☎ 0392 72889 or 03922 841296. Membership £1.25.

Cacophony (Unlimited) Aims to create quality PD with AMOS and others. Help given. Mark Wickson, 49 Perrott Close, North Leigh, Witney, Oxon OX8 6RU.

Coventry and Warks Commodore Computer Club Self-help, PD library, guest speakers, newsletter. Meets Christ the King Community Centre, West Hill Road, Coventry. Contact Will Light, 22 Ivybridge Road, Coventry, West Mid ☎ 0203 413511.

Deluxe Cheats Disk User Group Software advice. Updates every 2 months! £4 for disk, £2 for updates. Contact Steven Frew, 96 Campden Green, Solihull, West Midlands B92 8HG.

East Midlands Amiga User Group Self-help group for beginners and experienced users. Meets Willoughby Social Club, 7–10pm every Wednesday evening. Contact Richard Haythorn, 70 Felstead Road, Aspley Estate, Nottingham ☎ 0602 298075. Membership £5 a year.

Hereford Amiga Group Help, exchange of PD and shareware. Membership free. Contact John Macdonald, Alma Cottage, Allensmore, Hereford HR2 9AT ☎ 0981 21414.

Melton Amiga Users PD, serious, advice. No pirates. Beginners and experts welcome. Contact Stephen Mowbray, 68 Ferneley Crescent, Melton Mowbray, Leics LE13 1RZ ☎ 0664 63421 (evenings only).

Shropshire Amiga Link Advice, monthly disk mag, PD. Free membership. Contact N Cockayne, 2 Dodmoor Grange, Randlay, Telford, Shropshire TF3 2AW ☎ 0952 591376.

Sid The Kid Amiga Information on the Amiga 500, Plus, 1200. Free membership. Contact Sid Reeves, 75 Blossomfield Road, Solihull B91 1SA ☎ 021 705 8619.

Software Exchange Service 13 Bournville Lane, Stirchley, Birmingham, West Midlands B30 2JY. For more info ☎ Michael Pun 021 459 7576.

Solihull Computer Users Group PD swapping, tips, hints, news, etc. Contact Rich or Lee, 41 Leafield Road, Solihull, W. Midlands B92 8NZ.

West Midlands Amiga Club Training, problem solving, general interest. Meets Telford Snooker Centre, Canongate, Oakengates, Telford, Shropshire, 7pm every Tuesday, £2 per week. Contact: Kevin Genner.

68000 in Birmingham discussions, programming, guest speakers. Meet at Holloway Pub, Holloway Head, 8pm 1st and 3rd monday of the month. Contact Mike Bedford–White, 16 Westfield Rd. Acocks Green, B'ham B27 7TL.

Note: this list is provided as a free service for amateur, non-profit-making user groups.

WE NEED YOU – SEND IN YOUR DETAILS!

Amiga Shopper **wants a truly comprehensive list of all the Amiga user groups worldwide. If your user group isn't listed on this page, fill in the form below – we need you!. Send to** ***Amiga Shopper*** **User Groups List, 30 Monmouth Street, Bath BA1 2BW.**

User Groups AS37

Group name ....

Place of meetings ....

Nearest City ....

Contact name ....

Contact telephone number ....

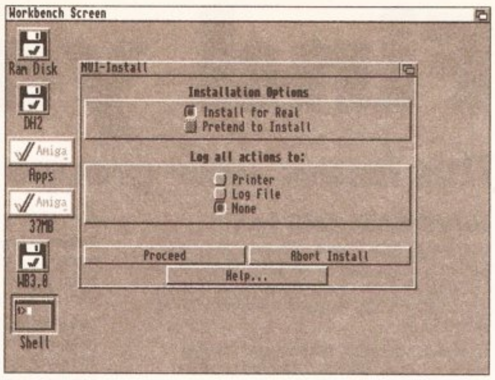
Contact address ....

....

....

AmigaDOS

Mark Smiddy hands you hot news on hard disk installation, accident prevention and improved startup-sequences on a plate.



Commodore's proprietary Installer software makes installation easy for everyone. It's a pity they didn't make it available sooner.

In last month's installment, I described setting up a hard disk under AmigaDOS — now it's time to finish the job with Workbench and applications. Installing Workbench (up to 2.04) to a hard drive is a simple matter of copying all the files from the Workbench disk set to the hard disk; after that, you should really use the Commodore Installer because that takes care of some strange bits peculiar to the later versions.

Getting the earlier Workbench versions on to the hard drive is a simple matter of booting the machine with no disks in any drive. If you're starting with a freshly formatted hard drive, you will be dropped back at the AmigaDOS prompt with the machine looking very sorry for itself. At this stage, you need to copy the main Workbench disk to the drive to get you started. Insert the main Workbench disk in the internal drive and enter this:

```
1>DF0:C/COPY df0:#? TO sys: all
```

This technique (called an absolute path) accesses the **COPY** command directly from the Workbench disk and copies its entire contents to the hard drive. The destination directory, **SYS:**, is automatically assigned to the hard disk's boot partition, ensuring Workbench gets put in the right place. Now remove the Workbench disk, re-boot the machine and gain access to the Shell from the hard disk just as you would from floppy disk: it will be a lot faster of course. The remainder of the disk set can be copied, one-by-one thus:

```
1>COPY df0:#? TO sys: all
```

INSTALLING APPLICATIONS

Copying applications to your hard disk should be a very easy matter because, in a perfect world, everything would come with *ready-to-run* installation programs. Of course, the world is unfortunately enough far from perfect and too few applications come with hard disk installation software. Even those that do sometimes suffer odd hiccups as Workbench versions change. Unbelievable as it may seem, some of the simplest mistakes can cause problems in future versions. Installation programs come in three main forms: a script (collection of AmigaDOS commands); custom program; or, latterly, an *Installer* script (a program for Commodore's own Installer software).

A classic AmigaDOS script *tune-up* is the use of direct command paths: while this is usually fine in non-portable code (such as a startup-sequence) it can cause real headaches in general purpose installations. The following example of a command path works fine in AmigaDOS 1.3 but will fail on later machines:

```
C:ECHO "Installing..."
```

The installation has assumed that the **ECHO** command is in the currently assigned command directory, C:, and forced access to it. This line is valid but shaky: making assumptions about what's in the current C: assignment. When AmigaDOS 2.0 came along many commands, **ECHO** was one of them, moved into ROM causing these early scripts to fail with an "Unknown command" error. If you find a script crashes like this, you should modify the offending lines to read without the path thus:

```
ECHO "Installing..."
```

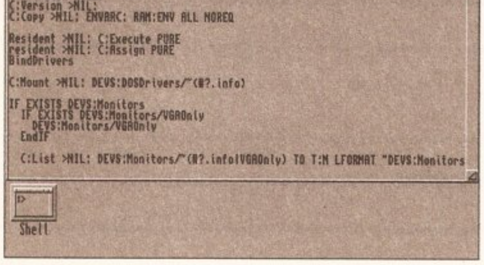
This is not necessarily bad practice, however, since such scripts were probably quite valid when they were written. However, other techniques are definitely extremely harmful. Even now, it is not unusual at all to see an installation program attempt to copy (typically) library files *on peace* without checking if a later version of the library is already in place. In AmigaDOS the following might be written:

USING ATOO TO SPEED UP YOUR STARTUP-SEQUENCE

***ATOO* is a handy little program supplied on last month's coverdisk (*Amiga Shopper*, Issue 36) that is designed to turbocharge startup-sequences. The program has the following synopsis:**

```
ATOO [SYS=<dir>] [C=<dir>] [S=<dir>]
[DEVS=<dir>] [LIBS=<dir>] [FONTS=<dir>]
[REXX=<dir>] [LOCALE=<dir>] [PRINTERS=<dir>]
[KEYMAPS=<dir>] [ENVARC=<dir>] [HELP=<dir>]
[CLASSES=<dir>] [DF0=<nn>] [DF1=<nn>]
[DF2=<nn>] [DF3=<nn>] [DORAM] [EXECUTE]
```

***ATOO's* functions are as follows:**



Talk about putting your money were your mouth is: ATOO works so well I use it myself!

1.) First test for V37 AmigaDOS ROM (2.04 or higher) and return a result of OK if one was found and a WARN result if otherwise. This particular function is specifically intended for machines fitted with a Kickstart 2.0 (or 3.0) ROM and additionally a 1.3 or earlier Kickstart. *ATOO's* other functions are only available from V37 – Kickstart 2.04 or better.

2.) Make some or all the system assignments for Workbench 2.04 and higher — patching the KEYMAPS and PRINTERS assignments for the 2.1 and 3.0 Preferences editors.

3.) Re-assign the automatic system assignments to another drive or directory. This is specifically intended for machines with two Kickstart ROMs, but it can be used at any time.

4.) Add cache buffers to any floppy drives mounted on the system. This function is similar to ADDBUFFERS and can replace one or more calls to the command in a startup sequence. Each drive is accessed by its own keyword DF0, DF1, DF2 or DF3 followed by the number of buffers to add (15-20 is sufficient).

5.) Create and assign all the necessary directories on the RAM disk. Only applies when the DORAM switch is supplied.

6.) Execute a secondary startup-sequence. Specifically intended for machines fitted with dual Kickstarts and only applies when the EXECUTE switch is used.

7.) Remove the automatic FONTS: assignment if the fonts directory is not present. This function is always called when *ATOO* is executed. Some of these functions are specifically aimed at users with ROM switchers, others are of a more general nature and take some the hassle out of booting. Listing 1 is a code fragment from a typical Workbench 3 startup-sequence for a hard disk; the lines marked with an asterisk are deleted. Listing 2 is the same thing with *ATOO* applied! Everything after BindDrivers remains as it was.

It is important that you should note how some of the assignments (LOCALE to mention but one) change if you are running without a hard disk. Listings 3 and 4 represent the same modifications for Workbench 2.1 and 2.04 respectively. You can make these alterations to any boot disk, floppies included.

```
COPY Install:Libs/#? TO LIBS: ; never do
this!
```

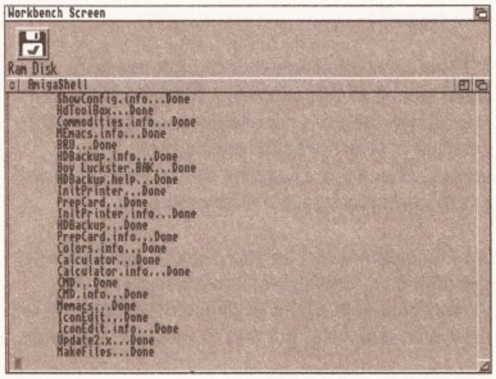
GENERAL PROTECTION

If a similar line appeared in an *Installer* script, or worse, a custom installation program, it might be impossible to avoid. The solution is pre-emptive: protect yourself before this happens with the AmigaDOS **PROTECT** command. Among other jobs, this command determines whether a file can be deleted (overwritten) by DOS or not. Files protected in this way are not totally bomb-proof, but only determined effort will remove or replace them. Installation programs are not usually this argumentative and will skip delete-protected files.

In AmigaDOS 2 (I'll come back to 1.3 shortly) the basic command looks like this:

```
PROTECT "file or pattern" d SUB ALL
```

Each file on an AmigaDOS filing system has a set of seven flags associated with it that allow certain actions to be taken. The **D,** or deleteable, flag tells AmigaDOS if the file can be removed or overwritten; and this is synopsis shows the general method for



PROTECT produces a lot of output — each file is listed as it is processed. You can get it to work silently by re-directing output to NIL: if necessary.

protecting any file against accidental deletion. It breaks down like this:

PROTECT "file" – gives the command the name of the file are interested in.

d – tells **PROTECT** which flag to work on. We're only interested in the **D,** or deleteable, flag.

SUB – this *switch* tells **PROTECT** to clear (**SUBtract**) the deleteable flag and render the file not-deleteable.

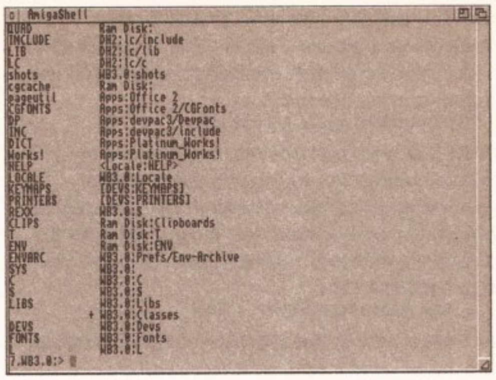
New files created by AmigaDOS (and all the system files) are automatically marked deleteable. There is an important point worth considering here. Just because a file cannot be deleted, it can still be updated. AmigaDOS can internally open any file for *writing* in one of three distinct ways:

NEW – A new (empty) file is created. If an existing file of the same name already exists at the specified location, it is overwritten — deleted. If the old file is marked not-deleteable, AmigaDOS will fail to create the new file and leave the old one intact. This mode is used by commands like **COPY**.

OLD – AmigaDOS attempts to open a file at the specified location and make it available for reading and writing. This mode is used by commands like **COPY** to read the source files. In 2.0 and later versions of AmigaDOS, this call fails if the file is *read* or *write* protected. This particular mode is intended to allow database applications (for instance) to update data files even if they are marked not-deleteable.

READ-WRITE – This mode was introduced in AmigaDOS 2 and is essentially the same as the *old* mode described above. However, if the file does not exist, AmigaDOS attempts to create a new one without generating an error.

For safety's sake, we need to make all essential system files non-deleteable. There are two methods depending on which version of AmigaDOS you are using. In AmigaDOS 2 and higher the following is used:



The assignment list can get quite hairy. This machine has assignments for Workbench 3 in addition to Lattice C, PageSetter, Devpac and Platinum Works.

```
1>PROTECT SYS:#? d SUB ALL
```

This breaks down as follows:

PROTECT – The command.

SYS:#? – This is a wildcard: a filename filter if you will. Tells the command to access all the files in the system directory, regardless of what their names are. The pattern **#?** is the most used wildcard in AmigaDOS — it means get everything. This mechanism is not available in the **PROTECT** command before AmigaDOS 2.

d SUB – As already described, this clears the deleteable flag on each file accessed by **PROTECT**.

ALL – This switch, which is only available from AmigaDOS 2, tells the filter to access all files in all sub-directories of the current level. Since we are starting at **SYS:** (the root, or top level directory) this causes **PROTECT** to affect every file on the disk.

PROTECTING AMIGADOS 1.3

AmigaDOS 1.3 users have a tougher time of it because the **PROTECT** command is somewhat less powerful. It does not have the pattern matching

LISTING 1 WORKBENCH 3 STARTUP

```
C:Setpatch QUIET
C:Version >NIL:
*C:AddBuffers >NIL: DF0: 15
FailAt 21
*C:MakeDir RAM:T RAM:ClipBoards RAM:ENV RAM:ENV/Sys
C:COPY >NIL: ENVARC: RAM:ENV ALL NOREQ
Resident >NIL: C:Assign PURE
Resident >NIL: C:Execute PURE
*Assign >NIL: ENV: RAM:Env
* Assign >NIL: T: RAM:T
* Assign >NIL: Clips: RAM:Clipboards
* Assign >NIL: REXX: S:
* Assign >NIL: PRINTERS: DEVS:Printers
* Assign >NIL: KEYMAPS: DEVS:Keymaps
* Assign >NIL: LOCALE: SYS:Locale
* Assign >NIL: LIBS: SYS:Classes ADD
* Assign >NIL: HELP LOCALE:Help
* IF NOT EXISTS SYS:Fonts
*  ASSIGN FONTS:
* ENDIF
BindDrivers
```

LISTING 2 WORKBENCH 3.0 STARTUP USING ATOO

```
C:Setpatch QUIET
C:Version >NIL:
FailAt 21
C:ATOO >NIL: DF0=15 DORAM REXX=S: PRINTERS=DEVS:Printers▼☛
KEMAPS=DEVS:Keymaps LOCALE=SYS:Locale HELP=LOCALE:Help CLASSES=LIBS:
C:COPY >NIL: ENVARC: RAM:ENV ALL NOREQ
Resident >NIL: C:Assign PURE ADD
Resident >NIL: C:Execute PURE ADD
BindDrivers
```

LISTING 3 WORKBENCH 2.1 STARTUP FRAGMENT USING ATOO

```
C:Setpatch QUIET
C:Version >NIL:
FailAt 21
C:ATOO >NIL: DF0=15 DORAM REXX=S: PRINTERS=DEVS:Printers▼☛
KEMAPS=DEVS:Keymaps LOCALE=SYS:Locale
C:COPY >NIL: ENVARC: RAM:ENV ALL NOREQ
Resident >NIL: C:Assign PURE ADD
Resident >NIL: C:Execute PURE ADD
BindDrivers
```

> The symbol ☛ means do not type a return – keep typing to the end of the next line. ▼☛ means type a space, then keep typing to the end of the next line.

LISTING 4 WORKBENCH 2.04 STARTUP FRAGMENT USING ATOO

```
C:Setpatch QUIET
C:Version >NIL:
FailAt 21
C:ATOO >NIL: DF0=15 DORAM REXX=S: PRINTERS=DEVS:Printers▼☛
KEMAPS=DEVS:Keymaps
C:COPY >NIL: ENVARC: RAM:ENV ALL NOREQ
Resident >NIL: C:Execute PURE ADD
BindDrivers
```

facilities and does not have an **ALL** switch. Commodore supplies a small utility called **SPAT** to circumvent the pattern matching problem. The new synopsis looks like this:

```
SPAT PROTECT "pattern" d SUB
```

SPAT just adds pattern matching facilities to certain commands, so you can use it without worrying what it does. However, it does not add an **ALL** switch so it is necessary to go through all the directories manually. Typically, you could use the command like this:

```
1>SPAT PROTECT LIBS:#? d SUB
```

to make all the system library files non-deleteable.

This is a long-winded way of using the command, but there is an easier way using **ALIAS**. Examine Shell-Startup and see if it contains a line like this:

```
alias PRO execute s:spat protect []
```

...if it doesn't, now would be a good time to add it! From here on it, you can use **PROTECT** with wildcards by calling the **PRO** alias like this:

```
1>PRO LIBS:#? d SUB
```

It is important to do this for every directory on the disk — including the **SYS:** (root) directory.

INSTALLING SOFTWARE

Now the 65 million dollar question: How is it possible to install an arbitrary piece of software to hard disk if it does not have a hard disk installation? Most commercial software, certainly that from better sources, will come with an installation program, and provided you follow the rules of engagement above, you should run into very few problems, especially if the program uses Commodore's proprietary *Installer* software.

Some software requires modifications to the startup-sequence and a few installation programs will attempt to do this for you. If you have protected everything as described above, the latter will not be possible. Ad-hock modifying of the startup-sequence from Workbench 2 is strongly discouraged; the special User-startup is reserved for that. This warning tends to affect pre-Workbench 2 applications with installations designed for the earlier systems.

If you're going to do any installation manually, you need to know what the program needs to run. The quick and dirty method involves copying the entire contents of each disk on to your hard disk: just as if you were copying Workbench. However, if the program is supplied on a disk configured for Workbench 1.3 and you are running Workbench 2 or higher, you'll end up with a lot of detritus. Moreover, if you want to put it on a different partition, you'll end up copying much that simply isn't needed. The following programmed analysis should help you discover what is required:

1.) Boot the program from its main disk. If you are taken to the Workbench screen go to Step 2; if the program starts immediately, continue at Step 3.

2.) Boot your machine from hard disk and insert the application's boot disk in any drive.

2a.) If this is a Workbench application, open the disk and start it as normal. If it starts correctly (without any odd requesters) proceed to Step 7; otherwise go to Step 4.

2b.) If the program does not appear on the Workbench it should be started from **Shell**. The program you're interested in may be in the root directory, or it may be hidden elsewhere on the disk. The **SEARCH** command is useful to locate things in this situation. If the program was called **AMSHOPPER** and was in a disk in **DF0:**, you could use the following:

```
1>SEARCH DF0: AMSHOPPER FILE ALL
BootDisk:MagTools/AmShopper
```

Given the full path and name, you can attempt to run the program thus:

```
1>BootDisk:MagTools/AmShopper
```

If the program starts normally go to step 8; otherwise go to step 4.

3.) This disk has a special startup-sequence designed to start the application quickly without going through Workbench. It may do nothing more than that. Keeping this in mind, return to Step 2.

4a.) If the you are confronted with a requester "Please insert Volume *nnnnn*" in any drive, this could mean one of two things. Either the program has been supplied on two (or more disks) and is asking for one of them; or is expecting to find a special assignment. Proceed to step 5.

4b.) If you have been given a message like "Requires ARP.Library V39+" or "Could not open needed library" or worse, nothing happened at all, move on to step 6.

5.) Some detective work is required here. If the application has been supplied on several disks,



ASSIGN in action on a grand scale! This is what S:User-startup is for — your own startup configuration: even down to running a screen blanker. Leave Startup-sequence alone, unless you know what you're doing.

then you will just have to follow the requesters at this stage. If it requires a special assignment, this will either have been configured during its own startup-sequence or will be detailed in the manual. If any special assignments are in the Startup-sequence, they should be mirrored in your hard disk's Startup-sequence (User-startup) too. Make sure they point to the right place though — see Step 5b for an example.

5b.) If the application has been supplied on several disks, then you should create a new directory on the destination partition for the application and a sub-directory in the application's directory for each additional disk. For example, if the application came on three disks labelled *MegaBase* (the boot disk) *MegaData* and *MegaSpell* and you wanted to store it on a the partition **dh1:**, you would do the following:

```
1>MAKEDIR DH1:MegaBase
1>COPY MegaData:#? DH1:MegaBase/MegaData ALL
1>COPY MegaSpell:#?▼☛ DH1:MegaBase/MegaSpell
ALL
```

Then add the following assignments to the Startup-sequence (User-startup from Workbench 2):

```
ASSIGN MegaData: DH1:MegaBase/MegaData
ASSIGN MegaSpell: DH1:MegaSpell/MegaSpell
```

Now copy the main program and any files from the main disk to the new partition. This is usually easier from Workbench, but with AmigaDOS you might catch an odd directory lurking there too. Use **DIR** to find out exactly what is on the disk like this:

```
DIR ALL
```

Copy anything that does not directly belong to Workbench (check with your own Workbench if you're unsure of any files) over to the relevant partition on the hard drive.

6.) This problem is more common than you might imagine, but once you've cracked it for one application, others will usually follow suit. Common third-party libraries include: **ARP.Library**, **EXPLODE.Library**, **HiSoftBasic.Library**, and **Extend.Library** (part of HiSoft BASIC).

All you have to do in this case is copy the missing library from the disk supplied with the application to your **LIBS:** directory and try again. If the program failed without any messages, you'll usually have to look around the disk to see if there's anything extra. You should also note, that some applications require a certain version of a library — say "arp.library 37+": never overwrite an existing library with an earlier one of the same name.

7.) The application has everything it needs to run. Since this is a Workbench-based application, you should now create a new directory on the relevant partition of your hard disk and copy the icon across. Check if the program starts normally, and if not follow the suggestions from Step 4.

8.) The program can be copied to its new home on the hard disk. Shell-based utility programs are usually best kept in the **C:** directory (where they will always be available) but that is up to you to decide.

WRITE ENABLE

After you have completed software installation, you should re-enable delete protection for at least some of the files. For instance, Workbench overwrites the preferences settings every time you change something. (It's worthwhile protecting them while installing new software, because the new installation may accidentally overwrite your settings for, say the printer, and leave you right in the lard.) Re-enabling deletion for Workbench 1.3, is simply:

```
1>PRO DEVS:Sys#? d ADD
```

Or, in long-hand:

```
1>PROTECT DEVS:System-configuration d ADD
```

And for 2.0 or higher it is:

```
1>PROTECT ENVARC:#? d ADD ALL
```

The **ADD** switch does the exact opposite of the **SUB** switch and re-instates the delete flag.

SUMMARY

You are now familiar with how to install Workbench and other applications to your hard disk, protect files against accidental deletion and the basics of speeding up your startups. What next? AS

KICKS ME

If you missed last month's issue you can obtain *ISTOO* and *ATOO* from the *Amiga Shopper* conference on CIX, or turn to our back issues section on page 74. BUTTON and SECURITY programs can also be found here and also from better PD libraries. If you experience any problems you can email me as: SMIDOID@CIX.COMPULINK.CO.UK

AMITEK
FRIENDLY TECHNOLOGY

Designed to bring you high quality and performance at affordable prices, AmiTek peripherals offer outstanding value-for-money. They are built to ensure easy fitting, and trouble free operation - making them a pleasure to use. AmiTek products are also thoroughly tested and very reliable, so reliable that we are pleased to offer a full two year warranty on the AmiTek products detailed here.

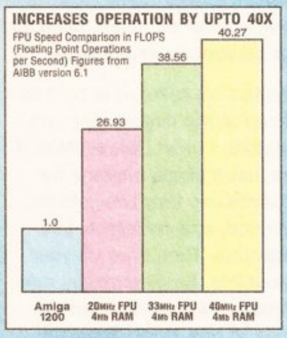
AMITEK - 'FRIENDLY TECHNOLOGY'

AMIGA PERIPHERALS FOR ALL AMIGA SYSTEMS

HAWK RAM UPGRADE & MATHS ACCELERATOR

FOR THE AMIGA 1200

Maximise the processing power of your standard A1200. Be ready for the new generation of software which makes more demands on Amiga memory and technology. The AmiTek Hawk RAM expansion includes up to 8Mb fast 32-bit RAM, the ability to support a sophisticated 68882 FPU (Floating Point Unit - drastically increases the speed of maths intensive operations) and a battery backed up clock. Built to a high standard, this board can be easily installed and comes with a 2 year warranty. The Hawk RAM board is available in 9 pre-configured versions enabling you to select the model which best suits your requirements.





- Plugs straight into A1200 trapdoor - No soldering required
- Upgradeable FAST RAM board to 1, 2, 4 or 8Mb
- Uses industry standard socketed SIMMs for easy upgrades
- Two types of optional Floating Point Unit - 33MHz or 40MHz PLCC 68882 co-processor
- Comprehensive easy to follow manual with illustrations
- Works with all A1200 and A1200HD computers
- Does not invalidate your A1200 warranty
- 2 year warranty

	NO FPU	33 MHz FPU	40 MHz FPU
1 Mb RAM	£99 INC VAT - RAM 1210	£159 INC VAT - RAM 1213	-
2 Mb RAM	£139 INC VAT - RAM 1220	£199 INC VAT - RAM 1223	-
4 Mb RAM	£199 INC VAT - RAM 1240	£259 INC VAT - RAM 1243	£299 INC VAT - RAM 1244
8 Mb RAM	£399 INC VAT - RAM 1280	-	£499 INC VAT - RAM 1284

PRICES FROM ONLY

1Mb RAM, NO FPU
£99
INC VAT - RAM 1210

1Mb SONY® 3½" DELUXE FLOPPY DRIVE

FOR ALL AMIGA COMPUTERS



'Amitek's new disk drive combines an elegant design, high build quality and smooth performance in a very affordable package. Highly recommended'. Jason Holborn - Leading Amiga Journalist

DELUXE FEATURES
The AmiTek drive has been specially designed to meet the needs of Amiga users and has many deluxe features which are not included in other drives - check out the competition!

ANTI-CLICK
The anti-click feature stops your drive from making lengthy whirs and clicks that occur when the drive is empty and searching for a disk.

ANTI-VIRUS
The switchable Anti-Virus mode stops track 0 viruses infecting the disk while in the drive. Yet, unlike many other drives which have virus killers, this Anti-Virus mode can be disabled, allowing some fussy copy protected software to run.

ADD ADDITIONAL DRIVES
As a double sided mechanism, the AmiTek drive gives 880K of disk space after formatting. It is also daisy-chainable, which means that you may add further drives to your system and, uses very little power from your Amiga.

HIGH QUALITY SONY MECHANISM
AmiTek took the time to source a mechanism that has all the features, quality and reliability that Amiga owners have been crying out for. After vigorously testing Sony's mechanism, it proved to be the best by far available.

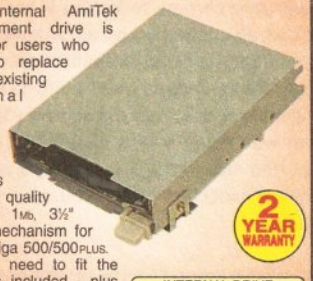
- High Quality 3½" Sony Mechanism
- Strong Metal Casing
- Built-In Anti-Click Feature
- Switchable Anti-Virus Mode
- Enable/Disable Switch
- 75ms Access time
- Daisy Chainable Via Thru Port
- Low Power Usage
- No Need For External PSU
- 2 Year Warranty

Details taken from models available MARCH '94	ANTI-CLICK	ANTI-VIRUS	STRONG METAL CASE	QUALITY SONY MECHANISM	ISOLATION SWITCH	2 YEAR WARRANTY
AMITEK	✓	✓	✓	✓	✓	✓
CUMANA	-	-	-	-	✓	-
POWER E	-	-	✓	✓	✓	-
ZAPPO	-	-	✓	-	✓	-

EXTERNAL DRIVE
£59
INC VAT - DRI 1159

1Mb INTERNAL FLOPPY DRIVE

FOR AMIGA 500/500PLUS



The internal AmiTek replacement drive is ideal for users who wish to replace their existing internal drive.

The pack features a high quality internal 1Mb, 3½" drive mechanism for the Amiga 500/500PLUS. All you need to fit the drive is included, plus easy to follow fitting instructions and 24 months replacement guarantee.

2 YEAR WARRANTY

INTERNAL DRIVE
£44
INC VAT - DRI 3600

PCMCIA CARDS

FOR AMIGA 600/1200

2 YEAR WARRANTY



For sheer ease of use and flexibility you can't beat AmiTek's PCMCIA RAM upgrades. These compact credit card sized upgrades slot into the PCMCIA port on your A600 or A1200, increasing the RAM by 2Mb or 4Mb.

2Mb CARD	4Mb CARD
£119 INC VAT - RAM 6020	£179 INC VAT - RAM 6040

MODULATOR

FOR ALL AMIGAS



The AmiTek External Modulator makes an ideal replacement modulator for all Amiga owners. Everything needed is supplied. Like all AmiTek peripherals, it comes with an easy to follow manual.

- User friendly manual included
- High quality design
- FREE RF cable supplied

MODULATOR
£34
INC VAT - MOA 4200

RAM UPGRADES

FOR AMIGA 500/600

Many business packages and advanced games require more than your Amiga's standard memory capacity to run at their full potential. The AmiTek range of RAM upgrades is the perfect way to add that extra memory capacity to your system. The following RAM upgrades are all trapdoor cards and fitting will not affect your Amiga's warranty.

2 YEAR WARRANTY

A500 - Low cost 512K upgrades, with or without a battery backed clock.
512K - NO CLOCK: £20 INC VAT - RAM 0505 | 512K - WITH CLOCK: £25 INC VAT - RAM 0510

A500PLUS - The A500PLUS has a battery backed clock built-in, so these 1Mb RAM upgrades do not require this.
1Mb UPGRADE: £30 INC VAT - RAM 0520

A600 - Low cost 1Mb RAM upgrades, with or without a battery backed clock.
1Mb - NO CLOCK: £30 INC VAT - RAM 0605 | 1Mb - WITH CLOCK: £40 INC VAT - RAM 0610

1720090304

SILICA 1978 1993 15 YEARS SERVICE TO YOU

THE SILICA SERVICE

Before you decide when to buy your new Amiga products, we suggest you think very carefully about WHERE you buy them. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica, we ensure that you will have nothing to worry about. We can meet our customers" requirements with an understanding which is second to none. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Service".

- ***FREE OVERNIGHT DELIVERY:*** On all hardware orders shipped in the UK mainland.
- ***TECHNICAL SUPPORT HELPLINE:*** A team of technical experts will be at your service.
- ***PRICE MATCH:*** We match competitors on a "Same product - Same price" basis.
- ***ESTABLISHED 15 YEARS:*** We have a proven track record in professional computer sales.
- ***PART OF A £50M A YEAR COMPANY:*** With over 200 staff - We are solid, reliable and profitable.
- ***CORPORATE & EDUCATION DIVISION:*** Volume discounts are available. Tel: 081-308 0888.
- ***SHOWROOMS:*** We have demonstration and training facilities at all our stores.
- ***THE FULL STOCK RANGE:*** All of your requirements are available from one supplier.
- ***FREE CATALOGUES:*** Will be mailed to you, with special offers and full details of hardware, peripherals and software.
- ***PAYMENT:*** We accept most major credit cards, cash, cheque or monthly terms (APR 29.8% - written quotes on request).

SILICA

HOT LINE 081-309 1111

SILICA IS A DIVISION OF PROOS PLC

MAIL ORDER:	1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX	Tel: 081-309 1111
CHELMSFORD SHOP:	Debenhams (2nd Floor), 27 High St, Chelmsford, Essex, CM1 1DA	Tel: 0245 490654
CROYDON SHOP:	Debenhams (2nd Floor), 11-31 North End, Croydon, Surrey, CR9 1RQ	Tel: 081-688 4455
GLASGOW SHOP:	Debenhams (5th Floor), 97 Argyle St, Glasgow, Strathclyde, G2 8AR	Tel: 041-248 3896
IPSWICH SHOP:	Debenhams (2nd Floor), Waterloo House, Westgate St, Ipswich, IP1 3EH	Tel: 0473 287092
LONDON SHOPS:	52 Tottenham Court Road, London, W1P 0BA	Tel: 071-580 4000
	Selfridges (Basement Arena), Oxford Street, London, W1A 1AB	Tel: 071-629 1234
MANCHESTER SHOP:	Debenhams (3rd Floor), Market St, Manchester, Lancashire, M60 1TA	Tel: 061-839 3654
SIDCUP SHOP:	1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX	Tel: 081-302 8811
SOUTHEND SHOP:	Keddies (2nd Floor), High Street, Southend-on-Sea, Essex, SS1 1LA	Tel: 0702 468039

To: Silica, AMSHP-0594-125, 1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX

PLEASE SEND A 64 PAGE AMIGA COLOUR CATALOGUE

Mr/Mrs/Miss/Ms: .... Initials: .... Surname: ....

Company Name (if applicable): ....

Address: ....

....

.... Postcode: ....

Tel. (Home): .... Tel. (Work): ....

Which computer(s), if any, do you own? 125H

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

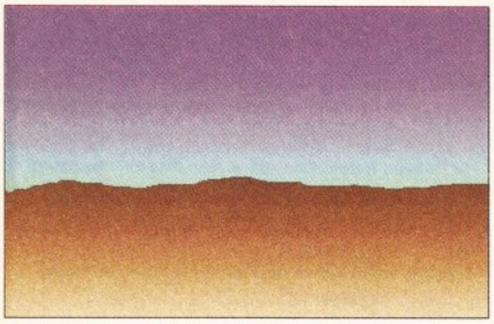
Learning to Fly

The flying logo is now an integral part of many film, TV and advertising productions. Gary Whiteley shows you how to get going.

One of the most popular methods of getting a logo or trademark on to screen during an advert, title sequence or special effect is to 'fly' it in, land it in vision and keep it there long enough for the viewer to take in its meaning. Even better, if you make the logo a smart looking chrome one, then you'll impress everyone with your Hi-Tech approach. Sounds easy, doesn't it? But, as many of you will no doubt realise, working in 3D can be a frustrating process which could easily involve many, many hours of patient tweaking and endless rendering before you get the results that you want.

If you've tried to get your logos flying in the past but have given up in despair, worry no more. I'm here to show you how to do it! Although the 3D program I'll be concentrating on here will be *Imagine 2*, there's no reason why you can't adapt the methods and processes I'll be using to your own favourite 3D program. I'll be using *Imagine 2* both because it's been a firm favourite of mine for several years, so I am pretty familiar with it, and also because there are bound to be a few *Amiga Shopper* readers who have recently started using *Imagine 2* after getting it free with *Amiga Format* last year. The main requirements if you use another 3D program are that it is able to do reflection mapping and animate objects.

In addition to your 3D program you'll need a 2D paint program and possibly a program such as Axiom Software's *Pixel 3D* or *Pixel 3D Pro* which can turn a 2D bitmap into a 3D object. The aim of the exercise is to produce a series of Amiga-generated images which can be turned either into an Amiga-playable animation, or recorded sequentially on to video tape. A word of warning – if you have an Amiga with only limited amounts of memory, or without a hard drive, you can probably still follow this tutorial without any major problems, but you most likely won't be able to play any of your animations back successfully. You'll also need to have several floppy disks ready for storing the rendered images on to. If memory proves to be tight, try rendering the images in lower resolutions (say 160 x 128) and in HAM rather than 24-bit. Because there are so many different Amiga configurations out there, I'm afraid it will be largely up to you to determine the best approach for your particular setup.



An image for reflection is vital when you make chrome objects. This one will provide a truly classic Landscape effect.

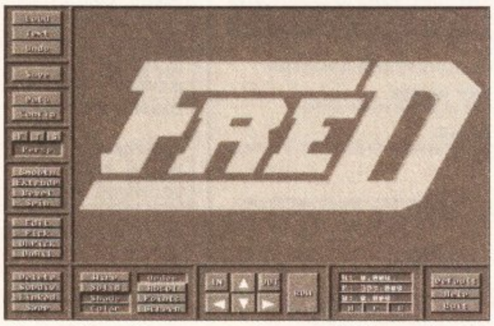
GETTING STARTED

Let's start with a bit of thinking and planning. Look at your logo and imagine how it could be made to fly on to a screen. Can it be split into several parts? Can these parts be made to rotate? Will they fly in separately and, if so, in what order? How long will the full flying sequence be? In other words, how many images will you need to render to make up the length of time required? (Note, if you are going to record the images to video you'll need at least 12 frames per second, but preferably the full 25 frames which make up every second of video). Remember that it is very unlikely that your computer will be able to play any Amiga animation back at the full video rate of 25 frames per second, so you could probably get away with generating fewer frames if you plan on making an Amiga-only animation. For the purposes of my tutorial I'll only be generating 25 frames, but in reality it may be that 250 frames (or more) are required to produce a full-length sequence.

LOGO TO GO

The first step in producing our flying logo is to construct the logo itself as a 3D object. There are several ways of doing this and the one to choose often depends upon the logo itself. In most cases the logo will be a fairly simple graphic design which may or may not be based upon, or include, lettering. If the logo isn't too complex it is usually possible to model it directly in the 3D program, extruding it later if necessary. In the event that the logo is too complex, you don't have the required font for the design, or your 3D software cannot handle fonts, then the alternative route is to first draw up your logo in a 2D paint program such as *Deluxe Paint*, *Brilliance* or whatever you have, and then use either your 3D software or another suitable program to turn the bitmapped design into a 3D object. This is the method I used to produce my **FRED** logo.

In order to realise the best possible quality (transfer the least amount of jaggies from the bitmap to the vector-based 3D solid), it is best to produce your logo bitmap at the largest size and highest resolution possible. I used *Deluxe Paint 4* in hi-res interlace. Use just a single bitplane for your design (in other words use only two colours, background and foreground) and preferably use white on a black background. Then draw up your logo as precisely as possible. Small changes may be made in your 3D program's modeller, but do your best to be accurate at this stage. Save the design as an IFF image.



If your 3D software cannot convert bitmaps to 3D objects, you'll need to employ a program like Axiom Software's Pixel 3D Pro.



If you draw your logo in a paint package, such as Deluxe Paint, do it as accurately as possible.

PAUSE FOR REFLECTION

Since we're going to do a chrome logo and since we already have a paint program running, now would be a good time to create an image for the logo to reflect. We need to do this in order to make the chrome look convincing, since real-world chrome reflects its surroundings. We'll use one of *Imagine's* tricks to simulate this. I've used a classic *airbrush-style* chrome reflection in my main example, but I've also provided an alternative image which produces a cloud-like reflection. Unlike the logo design, these images don't need to be particularly high-res or precisely drawn and you can easily get away with using a fairly sloppy lo-res design. In fact, the *cloud* image is just an 8 colour lo-res pic. What *is* important is that you save the images as brushes.

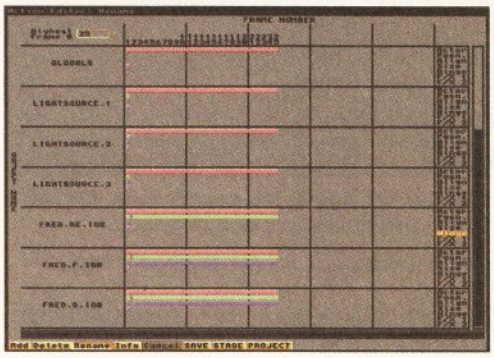
I've also used a background for my renderings, choosing one of the paper backgrounds provided with *Scala MM300* and recolouring it to something more suitable for my purposes. You could also design your own background, render one, or simply use colours generated by the 3D program. Another word of warning, with *Imagine* you need to make the background image *exactly* the same size as the image you plan on rendering. I generally make two versions which vary only in size; one at the final size I want to render and one for preview purposes, usually 160 x 128. The preview version helps speed up testing.

BECOMING SOLID

If you are using *Imagine*, the next step is to fire it up, set up a new project (why not call it FLYLOGO?) and rendering subproject and then open the **Detail Editor**. This is where we turn our bitmapped logo into a 3D solid, first by using *Imagine's* **Trace** function and then extruding the resulting object to

make a full 3D solid. If you aren't using *Imagine* and your 3D program doesn't have a 2D to 3D function, then you'll either need to use a specialist program such as *Pixel 3D* (or *Pixel 3D Pro*), or simply do it the hard way and use your software's modeller to build the logo object/s yourself.

In my example I've gone one step further and broken my **FRED** logo object into three distinct parts, so that I can fly each one around as I wish which helps to add a bit more interest to the proceedings. Each piece is given chrome attributes, and I turned **Phong** smoothing off so as to get completely flat faces. If you have no chrome attributes ready-made or handy, try entering these parameters into the **Detail Editor's Attributes Requester**:



Imagine's Action Editor is very powerful to use. Set up your logo's motions and rotations here, amongst many other things.

Colour : 255,255,255
Reflection : 210,210,210
Filter : 0 0 0
Specular : 255,255,255
Dithering : 0
Hardness : 190
Roughness : 0
Shininess : 0
Index Of Refraction : 2.27

OK, let's shake some action!

SETTING THE STAGE

Once we've got our logo object/s prepared, then it's time to put them into the virtual world and get them moving. There are several elements to this. Firstly, the objects have to be choreographed. My flying logo example achieves its movement by simply tweening each object between its start and end positions, with rotation as required. More complex motions can be obtained by using paths or extra tween positions, but you can play with these things yourself.

The second element is lighting, because without it your logo cannot be seen. I've used three lights, each set to 120,120,120 to give a flat, even lighting. Use your own variations if you like. Try changing each light's level over time, or its colour. Experimentation is the rule rather than the exception. I've also added a small amount (20,20,20) of ambient light, just to add a bit of fill where necessary. The third requirement is to make sure that the reflected image and the backdrop are in place and ready to go.

HERE WE GO

First, open the **Action Editor** and set the number of frames to 25. In the **Globals/Actor** line enter the full path and name of your **Global Brush** (the image that will be reflected by the logo – I called mine ChromeMap, original huh?). Then enter the path and name of the **Backdrop Picture** (mine is called Paper640). Remember to specify the smaller of the two backdrops (e.g. Paper160) if you are doing a HAM Quarterscreen preview, for instance. Lastly set the **Ambient** lighting to 20,20,20. That's got most of the easy stuff out of the way.

Next set the camera position to 0,-1500,0 and make its alignment 0,0,0. Sticking with the **Action Editor**, start adding your logo objects one by one. This can be a difficult procedure, so don't worry about their actual positions in 3D space right now. Each object will be present for the full 25 frames, so set its start and end frames to 1 and 25 respectively. For a better idea of how the Actor lines in the **Action Editor** look, have a look at the **Action Editor** illustration.

In the planning stage I decided that the **F** and **D** objects would rotate into place whilst moving past either side of the camera into their final positions. The remaining **RE** object simply moves straight past the camera towards its final position, without rotating. But how do we achieve this? Obviously the exact positions depend on the shape and size of your logo, but here are the basics:

For each object we need to add two extra lines in the **Action Editor**. Add both **Posn.** and **Align** bars for frames 2 through 25. These will carry the information on how the objects move and rotate. Now open the **Stage Editor**, select one of your objects, rotate and position it near the camera, but not so that you can see it in the view window. Don't forget to use **Camera View** and **Solid** so as to get the best view in the **Perspective** window. Note down the X, Y and Z settings for the position and alignment of each object that you move. I'm assuming that the final positions for each object will be 0,0,0 – as they were in my case.

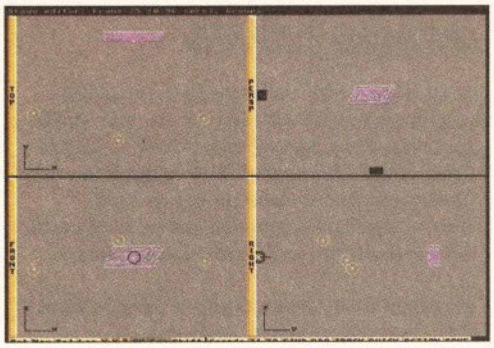
Armed with these figures, return to the **Action Editor** and enter the relevant numbers into the **Posn.** and **Align** bars for each object at frame 1. These will instruct the objects where to start from, then over the next 24 frames they will move to the ending positions (0,0,0) and alignments (0,0,0), which you should have set in the 2-25 **Posn.** and **Align** bars. Return to the **Stage Editor** and make a wireframe preview. If the motions all look OK, then it's time to add the lights.

LIGHTING UP TIME

Start by adding three lights in the **Stage Editor** (make sure that you do this in the first frame). Move the lights some distance back from the final resting place of the logo (in other words place them between the camera and the last position of the logo). Spread them out fairly widely and stagger them vertically for less obvious glare. Then enter the **Action Editor** and set the brightness of each light to around 120,120,120.

LET'S RENDER

We should now be all set to render. I'll assume that you've already set up a suitable subproject in the **Project Editor** (try HAM Quarterscreen – 160 x 128 for starters) and test render a few frames from the sequence to check lighting and positioning. If everything looks good, then go back to the **Action Editor**, swap the **Backdrop** image for the full-sized one, return to the **Project Editor** and change the rendering size to your new size. I used 640 x 512 Hires Interlace 24-bit. You can choose whatever you like!

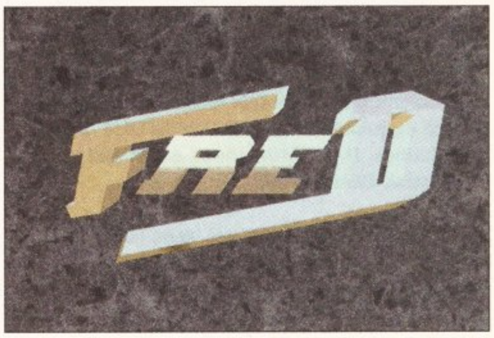


Place the lights away from the logo's final position.

But before you start the lengthy process of rendering, change the **EDLE** setting in *Imagine's* **Preferences** from 50 (the default setting) to 5 or less. This will improve the antialiaising of any rendered edges, so less jaggies will be in evidence in the final renders, though there's a small penalty to be paid in longer rendering times. That's the way it goes, good rendering takes time. If you're really serious about 3D work, you should have an accelerated Amiga with a maths co-processor.

Finally you'll need to compile your frames into an animation. You can do this with *Imagine*, but you'd be better off using a program such as *Rend24* or *MainActor* (both are Shareware), or making use of a commercial offering such as ASDG's *Art Department 2.3* or GVP's *ImageFX*. Alternatively, you could edit the images frame by frame to video if you have suitable equipment available.

And that's it folks. You are now fully qualified to create logos to your heart's content. Happy rendering and many flying logos! **AS**



Here are five rendered frames taken from my 25 frame flying logo sequence. Take note of the reflections on the chrome, in this case using the Landscape image.



Notice the difference that changing the reflected image makes. It's hard to believe that these results are produced by the crude bitmapped Clouds image shown earlier.

AMOS NEWS

It's been a pretty exciting month for AMOS programmers with not one, but two new AMOS disk magazines landing on my desk within the space of just two weeks. Disk magazines are a popular medium for user groups as they remove the high duplication and printing costs associated with conventional newsletters.

Mr AMOS Club – You will surely have heard of Brian Bell who programs under the name of Mr. AMOS. Brian was the winner of the *GamesMaster*/Europress Software games programming competition that featured on the Channel 4 program last year. Brian won the competition, and made a great deal of money from his winning game *Charlie Chimp*. Brian has now put his expertise to work in a new disk magazine called the Mr. AMOS Club. Although it lacks the presentation of such rivals as Totally AMOS and indeed N.B. AMOS, the content is second to none. Whilst most disk magazines are content to simply regurgitate the AMOS manuals, the tutorials featured within the Mr. AMOS Club discuss the finer points of games and demo programming. All this theory is also backed up by some great source files just waiting to be loaded into your copy of AMOS.

The Mr. AMOS Club disk magazine is available from Brian Bell, The Mr. AMOS Club, 8 Magnolia Park, Dunmurry, Belfast BT17 0DS.

N.B. AMOS – Nothing But AMOS has been skillfully put together by a very talented AMOS programmer – Neil Wright. N.B. AMOS is based around a mouse-driven front end which allows quick and easy access to the magazine's contents. Contents wise, N.B. AMOS is very good with the usual collection of AMOS news, reviews, tutorials and letters backed up by a good selection of AMOS source code, graphics and sound files. Although not quite up to the same standards as the Mr. AMOS Club disk magazines, N.B. AMOS shows some real potential. Check it out.

N.B. AMOS costs £2.50 per issue from: Neil Wright, 39 Riding Dene, Mickley Square, Stockfield, Northumberland NE43 7DL.

You may well remember that a couple of months ago I exclusively reported that Francois Lionet, the author of AMOS, had confirmed to me that he planned to start work on an AGA extension within a matter of weeks. Having recently spoken to Richard Vanner, Product Manager at Europress Software, it now seems unlikely that Francois will actually be working on an AGA extension at all due to his involvement in Europress' new PC product, *Click and Play.*

According to Richard Vanner, it is likely that development of the AGA extension will be handed over to a German AMOS programmer, Hendrik Heimer of the Software Society. Europress seemed unsure when work was due to start on the new extension and so trying to work out when the extension would be released is an almost impossible task.

AMOS Action

After many months of feverish coding, Jason Holborn puts the finishing touches to his AMOS paint program, AS Paint.

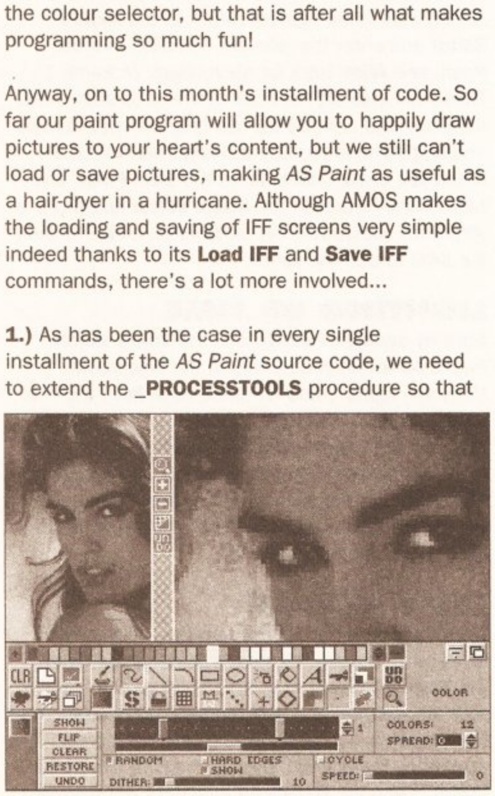
Believe it or not, we have reached the final chapter, the end-station of our AMOS journey. With this month's finishing touches you have reached the summit of the *AS Paint* program – in your hands you now have a fully working paint program. It's taken us well over six months to get this far – all you have to do now is read the last three pages and you will reach the climactic finishing goal. It's time to pop that champagne bottle and celebrate!

Whilst it wouldn't be correct to suggest that *AS Paint* is serious competition for the likes of *Brilliance* or *DPaint*, it's still an extremely capable paint program that boasts some impressive painting features. More importantly, it's served as a perfect example of how AMOS can be used to produce not only games and demos, but some powerful applications software too.

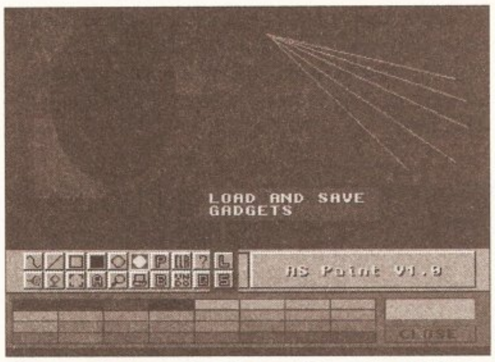
I had hoped that by the time we finalised this first version of *AS Paint*, Europress would have finally released the AGA version of AMOS so that we could 'beef' *AS Paint* up a bit enabling us to handle the new 256 colour AGA screen modes. Oh well, I guess this is something that I'll have to leave to you (if the AGA extension ever arrives, that is!). The code for *AS Paint* is certainly modular enough to make the task of modifying it to handle extended screen modes very easy indeed. You might get a few headaches trying to work out how to change the colour selector, but that is after all what makes programming so much fun!

Anyway, on to this month's installment of code. So far our paint program will allow you to happily draw pictures to your heart's content, but we still can't load or save pictures, making *AS Paint* as useful as a hair-dryer in a hurricane. Although AMOS makes the loading and saving of IFF screens very simple indeed thanks to its **Load IFF** and **Save IFF** commands, there's a lot more involved...

1.) As has been the case in every single installment of the *AS Paint* source code, we need to extend the **_PROCESSTOOLS** procedure so that



Could you turn AS Paint into a paint program that could rival Brilliance?



Once you've typed in this month's code, ASPaint will be able to save and load pictures.

AS Paint recognises our new sections of code.

2.) The first new addition to the **_PROCESSTOOLS** procedure is an **IF...THEN** construct that jumps to the **_ABOUT** procedure whenever the variable **SELECTED** contains a value of nine. The **_ABOUT** procedure simply generates a little requester that displays all sorts of information about *AS Paint*.

3.) If the variable **SELECTED** contains a value of ten, the **_PROCESSTOOLS** procedure will jump to the procedure **_LOADIMAGE** that handles the loading of IFF images into *AS Paint*.

4.) If the variable **SELECTED** contains a value of twenty, the **_PROCESSTOOLS** procedure will jump to the procedure **_SAVEIMAGE** that handles the saving of the painting screen to disk as an IFF file.

5.) The first of the new procedures is **_LOADIMAGE** which handles the **Load** gadget.

6.) The first thing that the procedure does is to get the filename of the IFF image that the user would like to load by making use of the standard AMOS file requester. If the user selects an IFF image, its filename will be stored in the **FILENAME$** variable.

7.) If the user entered a filename with the keyboard when the file requester was displayed, it's important to make sure that the file actually exists by checking with the **Exists()** function. This will return **TRUE** if the file does exist and the code inside the **IF...THEN** construct will be performed.

8.) The image is then loaded into a temporary screen (screen 2) using the **Load IFF** command.

9.) This screen is hidden from view whilst we inspect the integrity of the image.

10.) It could be possible that the user has attempted to load an image that is in the wrong format (too many colours, wrong resolution and so on). The program would then jump to a procedure called **_CHECKIMAGE** that, as its name quietly suggests, checks the image to make sure that it is

AS PAINT ENHANCEMENTS

Although this is the last section of code that I shall be adding to *AS Paint*, there are still a few other routines that need to be added before *AS Paint* is complete and fully functional. If you fancy yourself as something of a master coder, why not have a go at adding the following tools to *AS Paint* (the toolbox screen has already got gadgets to accommodate them).

PRINT PICTURE – This is a pretty self-explanatory function. All it really does is dump the canvas screen to a printer, allowing you to get a permanent hard copy of your pictures. If you own a copy of *AMOS Professional*, then this is an extremely simple routine to add because *AMOS Pro* has built into it a very handy 'Hard Copy' command specifically designed to dump an AMOS screen to printer. Owners of older versions of AMOS will have their work cut out for them, however.

BRUSH SELECTOR – Do you remember the preset brush patterns that we coded into *AS Paint* a couple of months back? (I certainly hope so). Well, we still don't have the requester that will allow the user to select which brush style they wish to use with the drawing operations. This should be a very simple routine to incorporate. At the very least, give this routine a try.

TEXT – The only drawing function that still needs to be added to *AS Paint* is the Text tool that will allow the user to *write* text into their pictures. All that is required is a requester that will allow the user to select the font and point size that they want and then enter a line of text that can then be pasted down on to the screen at the position that they choose.

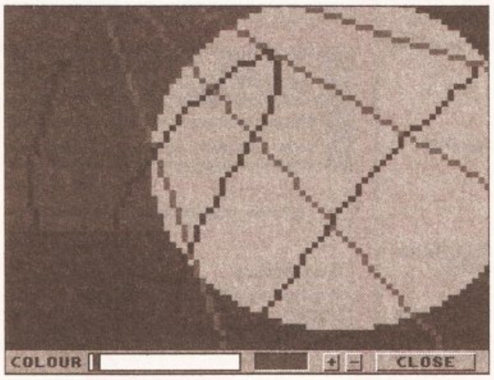
in the right format.

11.) The **_CHECKIMAGE** procedure will handle the task of transferring the loaded image to the canvas screen if it checks out OK, so all that remains is to close the temporary screen.

12.) Now we move on to the **_SAVEIMAGE** procedure, the simplest of the two file handling routines. This procedure simply saves the current canvas screen (the screen you draw into) to disk as an IFF file.

13.) Just like the **load** function, we need to start by asking the user the filename that the picture is to be saved under. This is done using the standard AMOS file requester.

14.) Just in case the user clicked on the **Cancel** gadget or simply didn't enter a filename, we check to make sure that a filename was indeed entered



There are certain modern artists who would have killed for the facilities in ASPaint.

using a simple **IF...THEN** construct.

15.) We set the current screen to screen 0 so that the **Save IFF** command knows which screen to save off to disk.

16.) The canvas screen is then saved off to disk in IFF format. Once saved, there's no reason why the user couldn't load their picture into any program that supports the IFF file format.

17.) One of the most important routines added this month is **_CHECKIMAGE.** It's used by the **load** function to make sure that the image that the user is attempting to load is in the correct format. If we were to simply load any image into *AS Paint* without checking its format, we could crash *AS Paint.*

18.) Before we enter the main body of code, the variable **FAILED** is defined. This variable will be set to one if any of the checks that the procedure carries out prove to be negative.

19.) The first thing we need to do is to get the various screen attributes of the main canvas screen. Three attributes are read: the screen height, width and depth.

20.) We then read exactly the same screen attributes from the temporary screen that the image was loaded into.

21.) The routine then enters an **IF...THEN** construct that starts by checking to make sure that the height and width of the canvas screen is either the same or greater than the temporary screen.

22.) We then carry out the same check on the canvas screen's depth to make sure that it has enough planes to cope with the colour palette of the loaded screen.

23.) If everything checks out OK, we can transfer the loaded image from the temporary screen into the canvas screen. The first step is to transfer the bitmap information using the **Screen Copy** command.

24.) The colour palette from the temporary screen is transferred into the temporary screen using the **Get Palette** command.

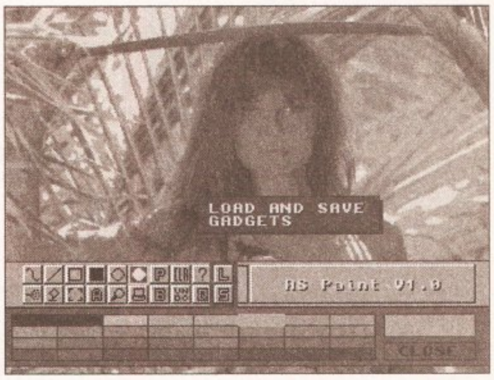
25.) Although we've transferred the colour palette to the screen bitmap, we still need to make sure that *AS Paint's* various palette handling routines are aware of the palette changes by transferring the colour palette definitions into the **PALTTE()** array. It's done using a simple **FOR...NEXT** loop.

26.) The first thing we must do is change the current screen to screen 2 (the temporary screen).

27.) The colour definition of each colour is read from the screen palette and put into the array **PALTTE()** using the return values from the **Colour** command.

28.) If the user had opened the colour selector screen before loading an image, the colour palette definitions held within that screen will not automatically be modified when the image is loaded. A simple check is therefore made to see whether the colour selector is currently open.

29.) If the colour selector is open, we need to make sure that this screen's palette is updated too



Honest, Jason drew this picture all by himself – it's a portrait of his little sister.

by transferring the colour definitions we place in the **PALTTE()** array into the colour selector screen.

30.) Finally, the current colour indicator box on the toolbox screen is updated so that it displays the new colour definition of the selected colour.

31.) If either of the two checks that we performed at the start of the **_CHECKIMAGE** procedure was false, the routine enters a section of code that displays an error message on the screen.

32.) The error message is displayed in a tiny 640 by 16 pixel screen that is opened and, following that, positioned.

33.) The error message text is then printed into the error message screen using the **Text** command. This command is better than **Print** as it provides pixel-perfect positioning of text.

34.) The routine enters a loop that waits until the right mouse button is pressed before proceeding. A **Wait VBL** command is used inside the loop. This is done so that this loop doesn't put too much strain on the Amiga's multitasking operating system.

35.) Finally, we have the **_ABOUT** procedure that simply displays the program's credits.

36.) The procedure starts by opening a 320 by 100

continued on page 72

BLITS & BOBS

AMOS has now sold well over 100,000 copies worldwide making it one of the most successful Amiga products ever – quite an achievement for a programming language!

PRIMA A500 & A600 RAM

3 YEAR WARRANTY!!

	A500P	A600
Unpopulated......only	£16.99	£23.99
Populated to 512K.only	£19.99	£28.99
Populated to 1 Mb..only	£28.99	£33.99

2Mb A600 OR A1200 RAM card.......£114.99
4 Mb A600 OR A1200 RAM card.£169.99

AMIGA A500 512K RAM by *PRIMA* for the original 1.2/1.3 *AMIGA*..only £15.99

32 BIT RAM (for A4000 etc)

1 Mb SIMM.........................£39.99
2 Mb SIMM.........................£95.99
4 Mb SIMM.........................£152.99
8 Mb SIMM.........................£309.99

RAM & CUSTOM CHIPS

SPEED	PLCC	PGA
25 Mhz	£53.99	£69.99
33 Mhz	£71.99	£9199
50 Mhz	N/A	£137.99

1mb by 8/9 SIMMS (1 Mb).......£34.99
4 Mb by 9 SIMMS (4 Mb).........£144.99
1 Mb by 4 DRAMS(1Mb).............£39.99
1 Mb by 4 ZIPS(1/2 Mb).............£22.99
256 by 4 ZIPS.......................(each) £5.49
256 by 4 DRAM (DILs)............(each) £5.49
DKB 1202 A1200 RAM board......£84.99
takes 2 32 bit SIMMs. Has an optional FPU. See above for prices
Kickstart 1.3.............................£19.99
Kickstart 2.04.............................£24.99
Kickstart 2.05 (for use in A600)...£26.99
Fatter Agnes 8372A......................£26.99
Super Denise...............................£18.99
6571-0326 Keyboard controller.£13.99
CIA 8520A I/O controller.............£8.99

AMIGA 1200 RAM

The HAWK CO-PROCESSOR & RAM

Realise the full potential of your A1200 with this trapdoor expansion. inc real time clock

1 MB RAM.............................£94.99
2 MB RAM.............................£134.99
4 MB RAM.............................£194.99
8 MB RAM.............................£389.99
1 MB & 20 MHz CO PRO.......£144.99
2 MB & 33 MHz CO PRO.......£194.99
4 MB & 40 MHz CO PRO.......£289.99
8 MB & 40 MHz CO PRO.......£489.99

FULL 2 YEAR WARRANTY

SUPRA A500 RAM

Simply the best! Fits onto the side expansion port Auto configures with no software patching.

8Mb pop to 2 Mb.............................£159.99
8Mb pop to 4 Mb.............................£214.99
8Mb pop to 8 Mb.............................£319.99
8Mb pop to 2 Mb for 2000/1500 range..£149.99

GVP PRODUCTS

A500 products

HD8+/0Mb drive.............................£127.99
HD8+/42Mb drive.............................£197.99
HD8+/120Mb drive.............................£297.99
PC286 Emulator for HD8+/A530...........£94.99

A1200 Products

33 Mhz 68882 for A1200 SCSI/RAM.....£77.99
External SCSI kit SCSI/RAM..................£47.99

NEW! A1230 MK II Accelerator Board

This new, improved board has all the same features as before, but with a DMA port allowing extra options (eg SCSI-II) to be added later.

40MHz 680EC30, 0MB RAM, No FPU..£244.99
40MHz 680EC30, 4MB RAM, 40MHz FPU.....£544.99
50MHz 68030, 0MB RAM, No FPU........£374.99
Other configuratons available ....£POA

A1500/2000/4000 Products

similar to the old HD8 series

4008+/42Mb hard drive.......................£197.99
4008+/120Mb hard drive.....................£297.99

Miscellaneous Hardware

Overdrive 35 External hard drive case...£139.99
XDS Dataflyer External Hard drive kit..£64.99
DKB Mega Chip II (2Mb chip RAM)..£169.99
gives 2 Mb of chip memory on A500/A1500/2000

SPECIAL OFFERS!

Directory Opus 4................................£45.99
Distant Suns 4.2................................£38.99
Kindwords 3......................................£24.99
Make Path for Vista............................£25.99
Maxiplan 4 spreadsheet......................£24.99
Scala 1.13..£49.99
Pagestream 2.2 DTP...........................£64.99
XCopy Pro plus hardware....................£25.99
Technosound Turbo.............................£18.99
Technosound Turbo 2.........................£25.99
Terraform...£25.99
Vista Pro 3...£45.99

♦

ROCHARD DRIVES for the A500/A500+ from £179.99 (40Mb)
GVP HC8+ from £199.99

♦

Mega Lo Sound.......................£25.99

SCANNERS

Power Scanner V4 £119.99

With the latest version 4 s/w for bright & sharp grey scale performance. Flexible scanned image display manipulation options, plus Clean up, embolden, resize & flip.

Colour version only £239.99

EPSON GT6500 Colour Flatbed only £587.50 phone for details

Art Department Pro Scanner S/W..£109.99
compatible with Epson ES300C, ES600C, ES800C, GT6000, GT6500 & GT8000

MICE & TRACKERBALLS

Alpha Data Mega Mouse 90% rating. 290 Dpi..£12.99 or £14.99 for 400 Dpi version
DATALUX CLEAR MOUSE High quality clear 2 button mouse............£19.99
Zydec Trackball.........................£29.99
Golden Image Trackball.£37.99

DISK DRIVES

NEW! Golden Image drive with LCD track display....only £49.99
NEW! AMITEC 1 mb 3.5" drive
Features Anti Click, Anti Virus, Sony Mech, 2 year warranty..........................only £58.99
Cumana 3.5"..........only £56.99
1 meg external drive. The best name in disc drives
A600/1200 internal drive............£53.99
A500 internal drive.....................£49.99
A4000 internal HD drive..............£99.99

PICASSO II

New generation retargetable graphics has arrived with this true 24 bit graphics board for the A2000/3000/4000.

1Mb version........................£299.99
2Mb version........................£335.99

GENLOCKS

hama ON DEMO NOW!

The Professional answer

hama 292.......................£269.99
S-Video, and composite compatible
hama 290.......................£674.99
S-Video, and composite mixing, plus far more
GVP Genlock..........only £297.99
features professional SVHS output
Rocgen Plus..........only £152.99
Includes dual control for overlay and keyhole effects, extra RGB pass thru. Now A1200 compatible!
Rendale 8802 FMC..only £164.99
Rocgen Rockey.......only £152.99
For creating special effects in video production with genlocks.

PRIMA ROM SHARERS

This high quality ROM sharer features a flexible ribbon connection so that it can be positioned anywhere within your A500 Plus or A600. Full 2 year replacement warranty

now only £19.99 or £27.99
for keyboard switchable version

ROMBO PRODUCTS

VIDI 12 Real Time £134.99
Real time colour digitizing from any video source. Full AGA support

VIDI 24 Real Time £223.99
24 bit quality real time colour digitizing from any video source. Full AGA support

VIDI 12 AGA £70.99
Full support for AGA chipset. Colour images captured in less than a second, mono images in real time with any video source. Multitasking s/w, cut & paste.

VIDI 12 SOUND & VISION AGA
with built in MegamixMaster £98.99

TAKE 2 £35.99
Features include load and save from D. Paint animations and IFF files. Supports HAM graphics.

Megamix Master........£26.99
8 bit, high spec. sampler. Special effects include echo that can be added in real time, fully multitasking & easy to use.

ACCELERATORS

MICROBOTICS

New M1230 for A1200 withup to 128 Mb fast RAM!

M1230 XA 33Mhz, 0Mb............£245.99
M1230 XA 40Mhz, 0Mb............£264.99
M1230 XA 50Mhz, 0Mb............£329.99

See "RAM & CUSTOM CHIPS" section for prices on Co-pro's and 32 bit RAM.

GVP

A1230/0Mb RAM for A1200..only £284.99
A1230/1Mb RAM for A1200..only £384.99
6882 Co Pro for A530..............only £129.99
1500/2000 G-FORCE 030-25MHz with 4Mb 32 bit RAM...........................only £479.99
G-Force 030-40MHz with 4Mb 32 bit RAM only £729.99

NEW! SUPRA ACCELERATOR for the A500/A500+& A1500/2000
28 Mhz, uses A500 side port so there is no internal fitting
only £139.99!

ACCESSORIES

Real Time A1200 internal clock module...only £12.99
Mouse/joystick manual port switcher.......only £13.99
Computer Video Scart Switch...................only £19.99
2/3/4 way Parallel port sharers £POA
Amiga Sound Enhancer Plus by Omega Projects. Hear the Amiga's sound like you've never heard it before! £36.99
QUALITY MOUSE MATS..............................£3.99
10 CAPACITY DISK BOX..............................£0.99
20 CAPACITY DISK BOX..............................£2.99
40 CAP LOCKABLE DISK BOX......................£3.99
100 CAP LOCKABLE DISK BOX....................£5.49
*90 CAP STACKABLE BANX BOX...............£9.99
*150 CAP STACKABLE POSSO BOX........£17.99
*add £3.00 delivery if purchasing just one Posso or Banx box. Normal delivery when purchased with other product or when buying 2 or more.
AMIGA A500 DUST COVER..........................£3.99
AMIGA 600 COVER.......................................£2.99
14" MONITOR DUSTCOVER..........................£6.99
12" MONITOR DUSTCOVER..........................£5.99
AMIGA TO SCART CABLES..........................£9.99
STD 1.8 METRE AMIGA PRINTER LEAD....£4.99
MODEM AND NULL MODEM CABLES......£9.99

AMIGA CONTROL STATIONS

A500 or 1200 VERSION..................................£36.99
A600 VERSION...£29.99

DISKS

All disks are 100% error free guaranteed
New High density 3.5 inch bulk and branded
Please phone for best prices!

QTY	Bulk DS/DD	Branded DS/DD
10	£4.49	£5.49
30	£12.99	£14.99
50	£20.99	£22.99
100	£37.99	£42.99
200	£69.99	£79.99
500	£168.99	£190.99
1000	£324.99	£365.99

Branded disks come complete with labels
Disk Labels....500..............................£6.99
Disk Labels..1000..............................£9.99

SOFTWARE

BUSINESS

Gold Disk Office U.K.spec...........£45.99
Maxi Plan 4..............................£24.99
Mini Office...............................£38.99
Money Matters...........................£35.99

MISCELLANEOUS

Distant Suns 4.2........................£38.99
GB Route Plus...........................£45.99
XCAD 2000................................£97.99
XCAD 3000................................£289.99

MUSIC/SOUND

Audio Engineer Plus V2...............£168.99
Clarity 16 sampler......................£105.99
Deluxe Music Construction Set v2....£59.99
Pro Midi Interface by Microdeal......£24.99
Stereo Master.............................£29.99
Techno Sound Turbo....................£18.99
Techno Sound Turbo 2.................£25.99

PROGRAMMING

Amos Creator.............................£34.99
Amos Compiler...........................£21.99
Amos 3D...................................£25.99
Amos Professional......................£47.99
Amos Professional Compiler..........£24.99
Bliz Basic 2...............................£53.99
Devpac 3..................................£50.99
Easy AMOS................................£24.99
SAS C Version 6.5.......................£234.99

PUBLIC DOMAIN *Top 30*

from £1.50! (*many more titles available*)

Ami Base Pro v 1.8..................(PDA001) 1 disk.£1.50
Disk Salv V2..........................(PDA003) 1 disk.£1.50
D-Copy V3.............................(PDA004) 1 disk.£1.50
Edword Pro V4........................(PDA005) 1 disk.£1.50
Easy Calc Plus........................(PDA006) 1 disk.£1.50
Fairlight Virtual Dreams.........(PDA008) 1 disk.£1.50
Grapevine 17..........................(PDA009) 3 disk.£2.75
Relokick 1.3...........................(PDA011) 1 disk.£1.50
Klondyke AGA.........................(PDA013) 3 disk.£2.75
Last Stand in Hoth...................(PDA014) 4 disk.£3.50
Mindwarp AGA Demo...............(PDA015) 1 disk.£1.50
Motorola invaders AGA............(PDA016) 2 disk.£2.25
Magic Workbench Utils............(PDA017) 1 disk.£1.50
Point of Sale Demo 1200 only...(PDA018) 1 disk.£1.50
PC Task Emulator....................(PDA019) 1 disk.£1.50
Reorg V3.1.............................(PDA023) 1 disk.£1.50
Spectrum Emulator version 1.7.(PDA027) 1 disk.£1.50
Spectrum Games Disk..............(PDA028) 1 disk.£1.50
TRSI Misery Demo...................(PDA029) 1 disk.£1.50
Fit Chix..................................(PDA030) 2 disk.£2.25
9 Fingers Rave Demo..............(PDA033) 2 disk.£2.25
Mean CD Machine...................(PDA036) 3 disk.£2.75
Fit Chix 2...............................(PDA034) 2 disk.£2.25
The Mini AGA..........................(PDA009) 1 disk.£1.50
CD32 Review...........................(PDA039) 2 disk.£2.25
State of the Art.......................(PDA024) 1 disk.£1.50
Andys Workbench 3 Utils........(PDA031) 1 disk.£1.50
Desert Dreams Demo...............(PDA012) 2 disk.£2.25
Origin Complex.......................(PDA040) 1 disk.£1.50
Ray World AGA Demo..............(PDA041) 1 disk.£1.50
Revelations............................(PDA020) 1 disk.£1.50
Mr Men Olympics.....................(PDA026) 2 disk.£2.25
Road to Hell............................(PDA032) 1 disk.£1.50
Kefrans Desert Dreams............(PDA012) 2 disk.£2.25

UTILITIES

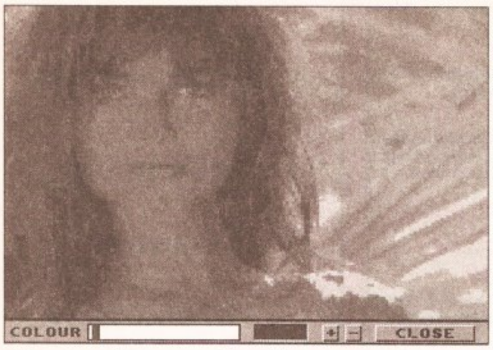
Ami..£44.99
Amiback Tools...........................£39.99
Amiback Plus Tools Bundle............£74.99
AMIGA Release 2.1 software upgrade........£49.99
Cross Dos V5.............................£36.99
Directory Opus 4........................£45.99
GP FAX 2.3 software....................£49.99
Giga Mem..................................£51.99
Quarterback V6 *NEW!*..................£52.99
Latest version of this Fast & Famous hard disk backup utility.
Prima A600/1200 Hard Drive setup software. This is the best setup software on the market..............£5.99
Quarterback Tools.......................£54.99
Quarterback Tools Deluxe..............£64.99
Xcopy Pro inc. hardware...............£25.99
Trap Fax professional fax s/w.........£74.99

VIDEO AND GRAPHICS

37 Compugraphic fonts Vol 1, 2, or 3 by GT..........£9.99
Adorage....................................£67.99
Art Department Pro 2.5..................£145.99
Art Department Scanner software......£114.99
Brilliance Pro. paint and animation.....£119.99
Caligari 24 3D Design and animation....£94.99
Deluxe Paint 3...........................£12.99
Deluxe Paint 4 AGA....................£69.99
Image Master RT........................£149.99
Make Path for Vista.....................£25.99
Morph Plus................................£147.99
Morphus by Impulse for Imagine......£59.99
Pixel 3D Pro *NEW!*......................£99.99
Real 3D Classic...........................£77.99
Real 3D V2.................................£389.99
Scala 1.13..................................£49.99
Scenary Animator V4 (3Mb reqired)......£49.99
Terraform..................................£25.99
Video Director............................£115.99
Video Master..............................£49.99
Vista Pro 3 (4Mb required)..............£45.99

WORD PROCESSING/DTP

Final Copy 2 (*UK*) *Release 2*..............only £66.99
built in outline fonts, full graphics import (IFF and HAM), UK thesaurus, spelling checker & much more.
Final Writer DTP *NEW!*....................£99.99
Kindwords V3...........................£24.99
Penpal 1.4...............................£29.99
Best selling feature packed word publisher with database
Pagestream 2.2 U.K. version..........£64.99
Pagestream 3 U.K. version............£249.99
Pagesetter 3............................£42.99
Pro Page V4............................£109.99
Pro Page V4 & Pro Draw 3............£139.99
Protext 4.3 W/P........................£39.99
Prowrite 3.3 *NEW!*......................£45.99
The Publisher DTP.....................£24.99
Wordworth 2 AGA.......................£44.99
Wordworth 3 *NEW!*.....................£107.99



If you can draw as well as this, you could save a fortune in photography and scanning costs.

continued from page 69

low resolution screen that will be used to display the credits.

37.) The credit text is written into the screen, using the same **Text** command that we used earlier.

38.) The **About** screen can be moved by dragging it up and down the display with the mouse pointer. This is handled carefully by a section of code that loops continuously until the user clicks the right mouse button.

39.) Inside this loop, there's a section of code that starts by checking to make sure that the mouse pointer is over the **About** screen and that the user is holding down the left mouse button.

40.) If both of these conditions are true, the position **About** screen is placed into a variable called **YOFF**. This value will be acting as an offset when moving the screen in relation to the mouse pointer position.

41.) The routine then enters a **Repeat...Until** loop that is performed until the user either lets go of the left mouse button, or the mouse pointer moves outside of the **About** screen.

42.) The position of the mouse pointer is then calculated relative to the top of the **About** screen. Using this value, the screen is repositioned to reflect any mouse movements. After waiting for a vertical blank, the loop is then performed again.

43.) If the user clicks the right mouse button, the main loop is broken.

44.) Finally, the **About** screen is closed and control returns to the main program.

You now know how to load and save IFF screens and add a few extra tools for the keen programmer, leaving *AS Paint* complete and us having to face the inevitable end of our journey. I hope you have enjoyed the series as much as I have. Enjoy and make the most of your completed program. AS

LISTING: LOADING AND SAVING IFF SCREENS

```
1. Procedure _PROCESSTOOLS
     If SELECTED=1
       _FREEHANDDRAW
     End If
     If SELECTED=12
       _FILLAREA
     End If
     If SELECTED=2
       _LINEDRAW
     End If
     If SELECTED=3
       _OUTLINEBOXDRAW
     End If
     If SELECTED=4
       _FILLEDBOXDRAW
     End If
     If SELECTED=5
       _OUTLINECIRCLEDRAW
     End If
     If SELECTED=6
       _FILLEDCIRCLEDRAW
     End If
     If SELECTED=7
       _PALETTEREQ
     End If
     If SELECTED=11
       _AIRBRUSH
     End If
     If SELECTED=8
       _CLEARIMAGE
     End If

2.   If SELECTED=9
       _ABOUT
     End If
     If SELECTED=13
       _GRABBRUSH
     End If
     If SELECTED=15
       _MAGNIFY
     End If
     If SELECTED=18
       _UNDO
     End If

3.   If SELECTED=10
       _LOADIMAGE
     End If

4.   If SELECTED=20
       _SAVEIMAGE
     End If
   End Proc

5. Procedure _LOADIMAGE

6.   FILENAME$=Fsel$("","","Select IFF
image","to load")

7.   If Exist(FILENAME$)

8.     Load Iff FILENAME$,2

9.     Screen Hide 2

10.    _CHECKIMAGE

11.    Screen Close 2
     End If
     Screen 7
   End Proc

12.Procedure _SAVEIMAGE

13.  FILENAME$=Fsel$("","","Select
filename","to save")

14.  If FILENAME$<>""

15.    Screen 0

16.    Save Iff FILENAME$
       Screen 7
     End If
   End Proc

17.Procedure _CHECKIMAGE

18.  FAILED=0
     Screen 0

19.  SCRW=Screen Width
     SCRH=Screen Height
     SCRC=Screen Colour
     Screen 2

20.  SCRW2=Screen Width
     SCRH2=Screen Height
     SCRC2=Screen Colour

21.  If SCRW>=SCRW2 and SCRH>=SCRH2

22.   If SCRC>=SCRC2
        Screen 0
        Cls 0

23.     Screen Copy 2 To 0

24.     Get Palette 2

25.     For A=0 To SCRC2

26.       Screen 2

27.       PALTTE(A)=Colour(A)

28.       If SELECTCOL=1
            Screen 1

29.         Colour A,PALTTE(A)
          End If
        Next A

30.     Screen 7
        Colour 4,PALTTE(CURCOLOR)
      Else
        FAILED=1
      End If
    Else
      FAILED=1
    End If

31.  If FAILED=1

32.    Screen Open 2,640,16,2,Hires
       Flash Off : Curs Off : Cls 0
       Palette $F00,$FFF
       Screen Display 2,,150,,

33.    Text 100,10,"INCORRECT SCREEN FORMAT"
       Text 284,10,"- Press right mouse button"

34.    Repeat
         Wait Vbl
       Until Mouse Key=2
     End If
   End Proc

35.Procedure _ABOUT

36.  Screen Open 2,320,100,2,Lowres
     Flash Off : Curs Off : Cls 0
     Palette $900,$FF0

37.  Text 120,15,"AS Paint"
     Text 55,30,"Written by Jason Holborn"
     Text 48,45,"For Amiga Shopper Magazine"
     Text 10,80,"Press right mouse button to
continue"

38.  Repeat

39.   If Mouse Screen=2 and Mouse Key=1

40.     YOFF=Y Screen(Y Mouse)

41.     Repeat

42.       Y=Y Mouse-YOFF
          Screen Display 2,,Y,,
          Wait Vbl
        Until Mouse Zone<>0 or Mouse Key=0
      Else
        Wait Vbl
      End If

43.  Until Mouse Key=2

44.  Screen Close 2
   End Proc
```

Scanned and Delivered

Jeff Walker provides tips and tricks for getting the best out of monochrome hand scanners.

When we talk about getting the best out of a monochrome hand scanner, we usually mean getting scans of photos taken with mono hand scanners to print at the highest possible quality. That is the first thing we are going to learn.

We're not going to bother with all this fancy convert-to-grey nonsense. If you own a mono hand scanner you've probably already discovered that mono scans of photos converted to 16 greys, or even the 256 anti-aliased greys some produce, do not print very well. They may look fine on the screen, but when you print them they are usually either very high contrast (dark in some areas and stark white in others) or very low contrast (all grey and muddy). And when you do get a comparatively good printout (it has a contoured appearance), you can see distinct edges between the shades of grey, just like the lines on a contour map.

The root of all these problems is the fact that the Amiga prints greyscale graphics in only 16 shades of grey, no matter how many greys are in the graphic. So what do we do to get around the problem? We print in just one colour – black.

No, I've not gone totally, utterly and completely mad. We must take advantage of the fact that the 1-bit black-and-white graphics that come straight from the scanner are dithered to simulate 64 shades of grey. It is these 1-bit graphics we must print if we are to get the best possible printouts.

You may have experimented with this and found that you have to scale them down first, and then when you print them they have grid lines all over them. There's a reason for that. To get the 1-bit graphic to print perfectly you have to scale it perfectly, and the amount by which you scale it depends on the output resolution of your printer.

Because the maths is simpler, let's assume for the moment that you have a 300 dpi printer. (All you bubble jet owners needn't fret, we'll we'll get to 360 dpi in a while, but the next bit is important so please don't skip it.) To simplify things even further, let's say our graphic is just 1 pixel big, coloured black. Now, that pixel is 1/75th of an inch wide, and 1/75th of an inch high. Yes, I know you may have read that the size of pixels depends on the monitor and the screen mode, but trust me, I know what I'm saying — as far as printing them is concerned, all pixels in Amiga bitmapped graphics are 1/75th of an inch big.

If we print that pixel at 100 per cent scale, which can also be written as 1.0 scale, then the dot that appears on the paper will be 1/75th of an inch big. Yuk. Ugly, jaggy, 75 dpi output. Your printer is capable of printing dots 1/300th of an inch big (300 dots per inch). What we need to do is get the application that is doing the printing to print that pixel as a single printer dot, then we have printed that pixel at the highest resolution on that printer.

We can do this. Oh yes we can. If we scale the printed output of the graphic to 50 per cent, how big will that 1/75th of an inch pixel print? Half as big, 1/150th of an inch in other words. If we scale the printed output of the graphic to 25 per cent, now how big will the pixel print? One quarter as big – 1/300th of an inch. That size ring a bell?

So, to get every pixel in a 1-bit graphic to print as one dot on a 300 dpi printer, you must scale the printed output of the graphic to 25 per cent, or to 0.25 as some software has it. Note that we are talking only about 1-bit (pure black and white) graphics here (no greys or colours), and that we need to scale the printed output of just the graphic, not the entire document.

In *PageStream* (reviewed in issue 17 – three star rating) this is achieved by entering the scaling figures for a graphic into its **Edit Coordinates** requester. In *ProPage* (reviewed in issue 27 – five star rating) and *PageSetter* you can do the same in the **Active Box** requester. Alas, none of the graphic based word processors enable you to enter scaling percentages, and some of them scale the actual bitmap when you resize them (as opposed to the printed output), which means you still end up with a horribly jagged picture, only a smaller one. Don't whinge at me, whinge at the developers.

Of the three **Photo** settings on a mono hand scanner, by far the best one to use to get the highest possible quality of printed output is the larger of the three dots — the one just before the **Text** setting. The smallest dot is certainly best for

continued on page 76



It may look terrible on the screen, but these dots simulate 64 shades of grey and look a lot better when they are reduced in size for printer output.





The better way to get 64 greys in your printouts is to exploit the dither patterns produced by the scanner, rather than converting to grey and letting the Amiga dither the output. The fine graphic on the left was scanned at 400 dpi using the largest dot Photo setting, scaled to 25 per cent in the DTP software and subsequently printed on a 300 dpi printer. The equally fine graphic on the right was in contrast scanned at 200 dpi using the smallest dot setting, scaled to 50 per cent in the DTP software and finally printed on a 300 dpi printer.

BACK ISSUES

Fill the gaps in your knowledge with our back issues service. Don't miss those reviews, tutorials and features!

ISSUE 2



2D Paint packages reviewed and rated; which programming language is the one for you; *PageStream 2*, *Scala*, *Broadcast Titler* and the KCS Powerboard PC emulator reviewed £3

ISSUE 11



CDTV and its software get a good going over; how to perfect your printing; Harlequin graphics board, Stereo Master sampler, *Genesis* and KCS Power Board PC emulator reviewed £3

ISSUE 13



FREE Tracey covermount and how to use it in our animation special; the unforgettable guide to Amiga memory; PC CDs with the A570; Miracle Piano Teaching System and RocTec hard drive reviewed £3

ISSUE 14



Hand scanners reviewed and rated; 15 memory expansions compared; incorporating sound effects and soundtracks into your animations; artificial intelligence; improve your Amiga programming £3

ISSUE 15



The best in PD software – how to set up a complete software system for nothing; the PostScript interpreter *Post*, *ImageMaster*, *SaxonScript Professional* DCTV and AVideo 24 reviewed £3

ISSUE 16



200 top tips – advice on everything from accelerators to Workbench, BASIC to WPs, C to video; getting the most from video titling; *Hit Kit*, *Professional Calc* and HAMA's 290 genlock reviewed £3

ISSUE 23



How to fit a hard drive to an A600 or A1200; starting with assembler; Cover disk: *Alert*, *Cycle To Menu*, *Kwikbackup*, *LhA*, *ReqTools*, *SnoopDOS*, *Virus Checker*, assembler and linker package £4

ISSUE 24



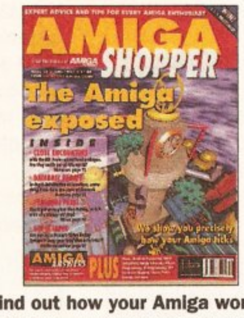
RAM – what it is and what to buy in our in-depth round-up and tutorial; DIY hardware repairs; parallax scrolling with AMOS; eliminating MIDI faults; *Art Expression* and G-Lock genlock reviewed £3

ISSUE 25



Nine top word processors reviewed and rated; legal advice with Amiga Advocate. Cover disk: *EdWord* text editor/WP, *AZSpell* spelling checker, CompuGraphic fonts and *Virus Checker* £4

ISSUE 26



Find out how your Amiga works with The Amiga Exposed; get the best from your samples; fractal landscapes; VHS back-up system, *Personal Paint*, *TypeSmith* and *ADI Junior* reviewed £3

ISSUE 27



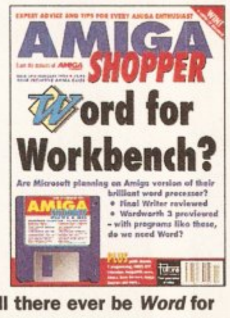
Upgrade your A500 to A1200 level; accelerator round-up; *Professional Page 4* reviewed. Cover disk: *OctaMED*, *XOper*, *Move* file mover, *JuliaMovie*, appointment scheduler, source code and *Virus Checker*. £4

ISSUE 33



Reviews special – over 50 products rated. Cover disk: *DICE C* compiler, *Address Book* C source, Nexus video backgrounds, *ASPaint* AMOS source PLUS free *Complete Amiga C* booklet...................£4

ISSUE 34



Will there ever be *Word* for Workbench? *Final Writer* reviewed and *Wordworth 3* previewed. Cover disk: *ReSource* Demo, *Rend24*, *ToolsDaemon*, C and AMOS source code, *Ami-Cipher*, *Ambush*, *GUI-Guru*.....£4

ISSUE 35



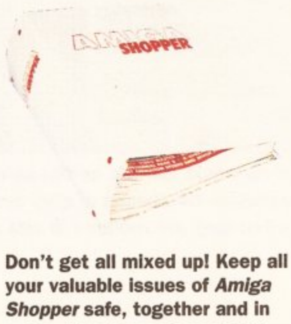
Special beginner's guide. *Noddy's Big Adventure* reviewed. Cover disk: *HDClick*, Compugraphic fonts, *King Con*, *Fast JPEG*, *Magic Menus*, *Trash Icon*, *Imagine* objects, C and AMOS source code £4

ISSUE 36



Render a superb-looking space ship with *Imagine*, *Real 3D* or *Caligari*. Cover disk: *X2C*, *Cover Ship*, *MIDI Player*, *BigAnim*, *LDOS*, C, AMOS and AmigaDOS source code, *BrushCon*, *Pay Advice*..........£4

THE AMIGA SHOPPER BINDER



Don't get all mixed up! Keep all your valuable issues of *Amiga Shopper* safe, together and in order. If you're serious about your *Amiga Shoppers*, then you really ought to consider getting a binder...............**ONLY £4.95**

AISSUE 3



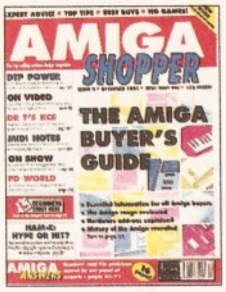
Accelerator cards put head-to-head; the versions of BASIC compared; first installment of C programming tutorial; *PageStream* tutorial; *Bars & Pipes Professional* and AT-Once PC emulator reviewed...........£3

ISSUE 4



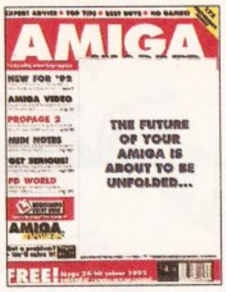
Ten of the most popular printers checked out; creating a structured drawing package with C; programming with Intuition; *Wordworth*, *Real3D*, *Imagine*, *Superbase 4*, *TEX* and *Pro 24* reviewed £3

ISSUE 8



A complete guide to buying Amigas and related hardware; Prolog programming; the HAM-E graphics system, RocGen genlock, KCS sequencer reviews PLUS tips on DTP, MIDI and spreadsheets £3

ISSUE 9



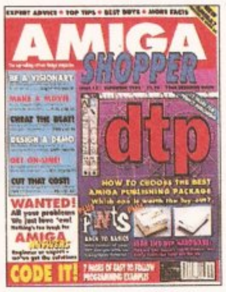
The complete Amiga software guide; how to receive satellite and radio transmissions; designing Christmas cards with *Professional Page*; using MIDI sequencers; reviews of *Scala* and the A500 Plus................£3

ISSUE 10



How best to draw with *Deluxe Paint*; the guide to the best sound samplers available; budget business packages; ARexx; *GB Route Plus 2*, *Showmaker* and Rendale Super 8802 reviewed £3

ISSUE 17



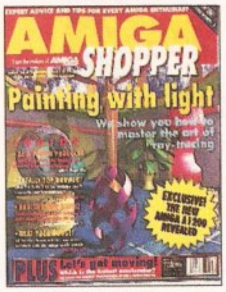
The top desktop publishing packages reviewed and rated; understanding typography; write adventure games with *Visionary*; tips on writing your own arcade game; Roland's new MIDI standard £3

ISSUE 18



Amiga Answers special – 32 pages of solutions to problems on everything from AmigaDOS to video; using lighting to enhance your 3D graphics creations; typographical tips; *Maxiplan 4* reviewed £3

ISSUE 20



Step-by-step guide to ray-tracing; accelerator board round-up; multitasking tutorial; build a ROM switcher; fractals tutorial; artificial intelligence; *AMOS Professional* and Opalvision reviewed............ £3

ISSUE 21



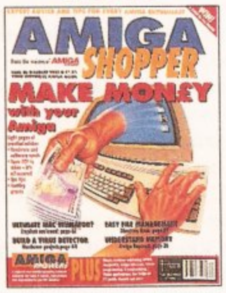
Amiga Shopper Awards for the best buys in '92. Cover disk: CG fonts, *DirWork*, screen blanker, *ICalc*, *LhA*, *PowerSnap 2*, *RDES*, *ReOrg*, *Safe Delete*, *SPClock*, *SysInfo* and *Virus Checker*...............................£4

ISSUE 22



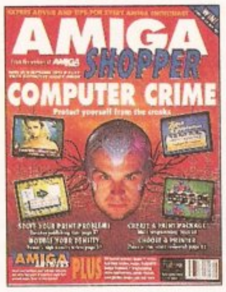
20 printers – dot matrix, inkjet and laser – reviewed and rated; beginner's guide to the Amiga; spreadsheet tutorial; guide to AmigaDOS 3; code clinic; sample storage techniques; hand scanners compared £3

ISSUE 28



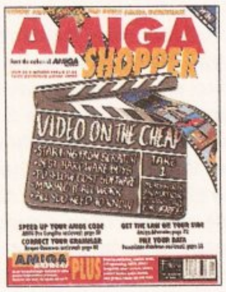
How to make money with your Amiga; Amiga animations on TV; legal advice; chords with *OctaMED*; *Directory Opus*, Emplant, *PageSetter 3* and *Art Department Professional* reviewed £3

ISSUE 29



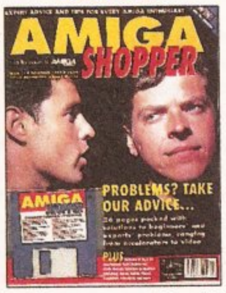
Computer crime and how to protect yourself from it; Power XL high-density floppy, Ami-Back back-up system, VLab YC digitiser, *Pixel 3D Professional* and MBX1230 accelerator reviewed £3

ISSUE 30



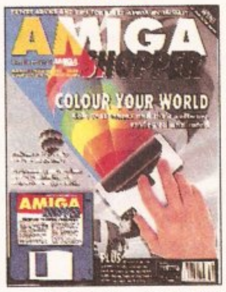
Video on the cheap – the techniques and low-cost software you need; how to use fonts; *Proper Grammar*, TechnoSound Turbo 2, *AMOS Pro Compiler* and *Powerbase* reviewed £3

ISSUE 31



Amiga Answers special – 26 pages of advice; Compugraphic fonts. Cover disk: debugging utilities, *Flexer*, *EasyCalc*, *PayAdvice*, *ASPaint* source code, *Address Book* source code, *Virus Checker 6.30* £4

ISSUE 32



Scanners special – reviews of colour scanners and their software; *Brilliance* reviewed. Cover disk: ACC Hardware Programming Guide, *MapStation*, Listings, *Alarm*, *ASPaint* and *QuickTools*........£4

BACK ISSUES ORDER FORM

AS37

Please tick the issues you require:
Prices listed are per copy and include postage and packing. Issue numbers not listed are sold out.
*Asterisk denotes issues with cover disk included. They are £4 each if bought separately.

SAVE MONEY: BUY IN BULK
Any two issues – £5
Any three issues – £7
Any five issues – £10

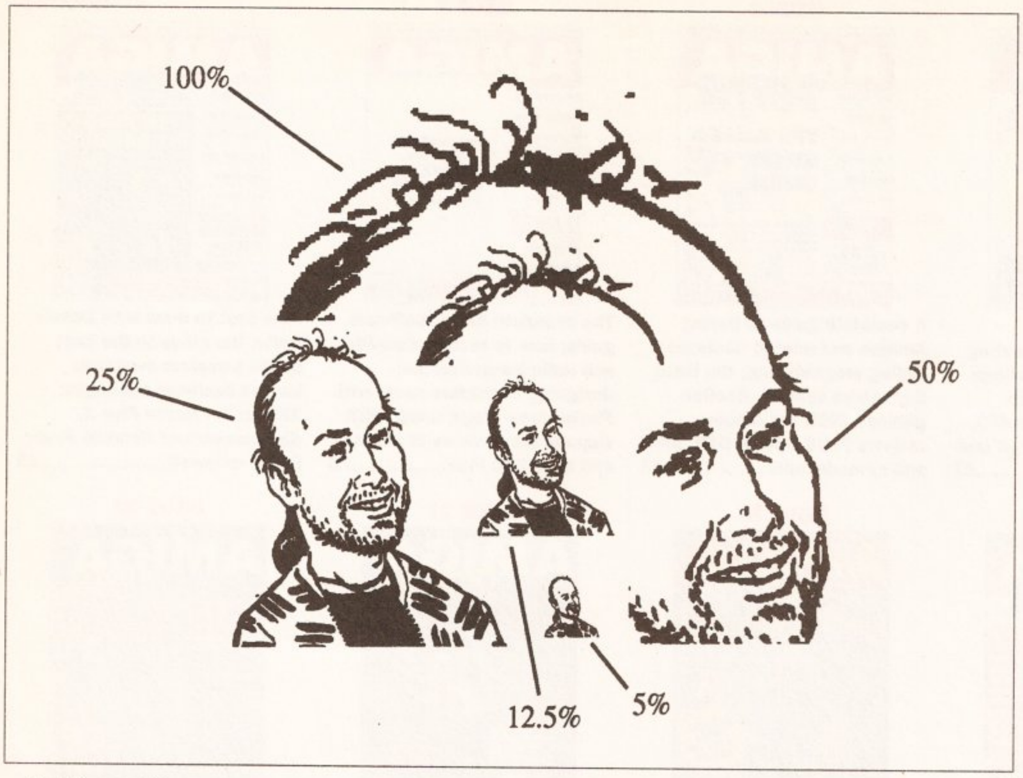
❑ BINDER £4.95

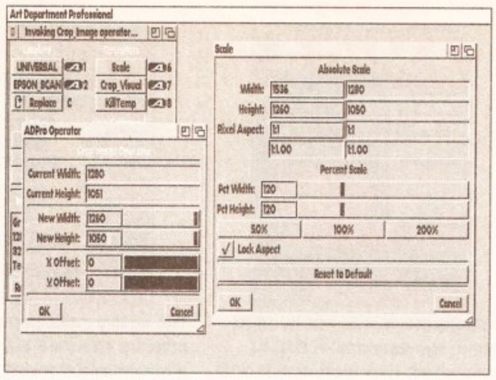
SEND THIS FORM (no stamp required) TO: *Amiga Shopper*, Future Publishing Ltd, FREEPOST (BS4900), Somerton, Somerset, TA11 6BR.
Do not send cash through the post with your mail orders.
Please make all cheques payable to Future Publishing Limited.

❑ 2 ❑ 3 ❑ 4 ❑ 8 ❑ 9 ❑ 10 ❑ 11
❑ 13 ❑ 14 ❑ 15 ❑ 16 ❑ 17 ❑ 18 ❑ 20
❑ 21* ❑ 22 ❑ 23* ❑ 24 ❑ 25* ❑ 26 ❑ 27*
❑ 28 ❑ 29 ❑ 30 ❑ 31* ❑ 32* ❑ 33* ❑ 34*
❑ 35* ❑ 36*

Total amount payable: £❑❑.❑❑

Name..
Address..
....
....
Post code
Telephone No..
Method of payment (please circle) Access • Visa • Cheque • PO •
Credit Card No...Expiry Date..........
Signature...





Because mono hand scanners cannot scan at 360 dpi, we have scaled 300 dpi scans by 120 per cent to simulate that scan resolution if we want to print them perfectly on 360 dpi printers. Before scaling, crop the graphic so that the width and height dimensions are divisible by 5.

Forget about autotracing bitmaps to get structured drawings for jaggy-free printer output, by scaling to 25 per cent in the DTP software (21 per cent for 360 dpi printers) they will print at the highest possible resolution on 300 dpi printers, every bit as good as structured drawings.

continued from page 73

converting to greys to get a good on-screen version of the scan, but the largest dot setting is best for this printer output scaling trick. The end results are dotty, but they look fine from reading distance and are perfectly adequate unless you want minute detail, in which case you are probably asking too much from both your scanner and your printer.

The brightness wheel is usually best left in its brightest position, or maybe just a little tweek darker. If you scan at 300 dpi, then after scaling to 25% the graphic will print at exactly the same size as the original. If you would prefer to print it smaller, don't scale it in the DTP software, simply scan it at 100 dpi or 200 dpi and scale to 25 per cent after importing it into your DTP package. If you would prefer to print it larger, scan at 400 dpi and again scale to 25 per cent after importing it. No other scaling figure will do, it must be 25 per cent.

Remember, this 25 per cent figure is only if you are printing to a 300 dpi printer. In fact, if you do a lot of mono hand scanning of photographs for inclusion in documents, a 300 dpi printer makes life a lot easier. For 360 dpi printers it gets a little complicated, as we are about to discover.

RECURRING NIGHTMARE

To reduce a 1/75th of an inch pixel to a 1/360th of an inch printer dot we have to scale to just under 21 per cent. The exact percentage has a recurring floating point part, so to scale it exactly in the DTP package is practically impossible. The nearest we can do is either 21 per cent in *PageStream*, or 0.208 in *ProPage* and *PageSetter*. If you try this and print it you'll find that every now and then there will probably be a dark or light line across or down the graphic caused by rounding errors in the calculation because we are not able to enter the exact scaling percentage.

In a nutshell, the calculation for the printed output of the graphic is awkward because 75 does not divide into 360 exactly. But if each pixel was 1/60th of an inch (that's 20 per cent bigger)... Can we make each pixel 1/60th of an inch big?

Yup, we can sort of do that, as long as we have some graphics software that enables us to crop and and scale bitmaps to exact figures.

If we scale the entire graphic to 120 per cent — make it 20 per cent bigger to put it another way — each dot in the graphic (and this time I mean those collections of pixels that form the dither) becomes 20 per cent bigger. Plainly a dot on the screen can be either one pixel square, or two pixels square, or three pixels square, but it cannot be 1.2 or 2.4 or 3.6 pixels square. It sounds like it shouldn't work, but if you ensure that the width and height of the graphic are both divisible by five, the application doing the scaling usually makes a pretty good job of it because enlarging by 20 per cent means adding one new row and column of pixels every five existing rows and columns. If the width and height of the graphic are not divisible by five then we may run into the rounding error again, which will result in rogue rows or columns of pixels thrown in seemingly at random, producing **ladders** in the dither pattern. Before scaling the graphic, crop it so that its dimensions are exactly divisible by five.

You do need very exact control over the cropping and scaling process, and the likes of *DPaint*, *Personal Paint* (reviewed on page 34) and *Brilliance* (reviewed in issue 32 – five star rating) are not designed for this type of job. I use *ImageFX* (reviewed in issue 27 – four star rating) to do my cropping and scaling, but *ADPro* (reviewed on page 26) or *Imagemaster* (reviewed in issue 18 – five star rating) would do just as well.

Once the graphic has been cropped, scaled and saved (as a 2-colour IFF-ILBM), you can import it into your DTP package and scale it to 21 per cent or 0.208. The enlargement job we did on the bitmap will almost completely compensate for the rounding errors when the graphic is being scaled for printing, and the output you'll get from using this technique will be the best you can get from a mono hand scanner and a 360 dpi printer. Just as with a 300 dpi printer, if you want to print the graphic smaller or larger, don't scale it to the required size in the DTP package, but simply scan at a lower or higher resolution, go through the cropping and scaling steps again, import it into the DTP package and scale to 21 per cent or 0.208. Any other scaling figures will produce *griddy* printouts of this type of scanned graphic.

If all this talk of pixels, dots, fractions, scaling and cropping has confused you, perhaps I can put it another way. Pretend we've taken a 300 dpi scan. This means that for every inch across the original, 300 dots (or pixels) were produced on the screen. But we want to print 360 dots per inch. If the scanner could scan at 360 dpi, we wouldn't have a problem. But it can't, so we do have a problem. Now, if we can turn those 300 dots on the screen (which are supposed to represent an inch on the printer) into 360 dots on the screen, we would then have screen output that matches our printer resolution. If we scale 300 dots by 120 per cent, we get 360 dots.

You may find it irritating, as indeed I do, that desktop publishing and word processing software cannot investigate the printer driver to find the top resolution and then give you the option of automatically scaling the printer output of a 1-bit graphic so that one pixel prints as one printer dot. It would be dead easy to do, and in fact one piece of Amiga software does contain such a feature — *PowerScan Professional 4*. So if you are a 360 dpi printer owner and you don't fancy cropping and scaling every scan, an alternative is to avail yourself of the latest *PowerScan* software and use that to print your scans, which you can then cut-and-paste in the traditional way on to your artwork.

Alas, when I say "360 dpi printer" I don't mean all 360 dpi printers, only inkjet ones. The dots produced by 24-pin printers are much too large for them to work with the above technique. Although they can print 360 dots per inch, those dots are not 1/360th of an inch big, more like 1/180th of

an inch, so adjacent dots have to be overlapped. If you imagine a line of graphics that is one black pixel, one white pixel, one black pixel, and so on right across the graphic, the overlapping of printer dots (known as *dot gain*) with 24-pin printers will have the effect of printing the black dots almost adjacent, thus destroying the white dots. Less white means a much darker printout, and there is nothing much that can be done except print at a lower density — 180 dpi for example.

LINE ART

So far we've only discussed scans of photos. Line art, taken with the scanner on the *Text* setting, is much simpler to handle. Because there are usually no regular patterns in line drawings, scaling the printed output of this type of graphic very rarely results in the awful grid lines that mar poorly scaled scans of 1-bit dithered photos. Happily, even 24-pin printers can cope with printing scans of 1-bit line drawings very well indeed.

The 25 per cent (0.25) and 21 per cent (0.208) scaling figures discussed above are the ones to use if you want your line art scan to print at the highest possible resolution. There is no need to stick rigidly to these scales, anything up to 50 per cent or 42 per cent (0.416) usually looks fine, but beware of scaling below 25 per cent on 300 dpi printers and below 21 per cent (0.208) on 360 dpi printers. When you enter scaling figures smaller than these optimums what you are doing is asking for each pixel in the graphic to be printed smaller than one printer dot. If the software took you literally then nothing at all would get printed, but it doesn't take you literally, instead it removes rows and columns of pixels here and there so that it is able to print the graphic at the requested size. For example if a 300 dpi printer owner scaled to 12.5 per cent, every other row and column of pixels would get removed from the graphic.

So if you want something printed smaller, rather than scale below 25 per cent/21 per cent, go and scan it again at a lower resolution.

One of the problems with scans of line drawings is that they often print with brutal sharp edges that give the graphic the appearance that it has been drawn by machine rather than by a human hand. The key to getting softer edges is to use a softer drawing implement. My personal preference is a fairly blunt 4B pencil. Edges of lines begin to break up, and even solid strokes have an amount of white in them, and when printed the graphic has much more of a hand drawn appearance than scans of art drawn with pen an ink.

Where you set scanner's brightness wheel depends on how heavy you draw, but I find that the mid position is always good for me. If you cannot draw, if you are scanning art that someone else has drawn, then you can simply trace that original with a 4B pencil and scan the tracing.

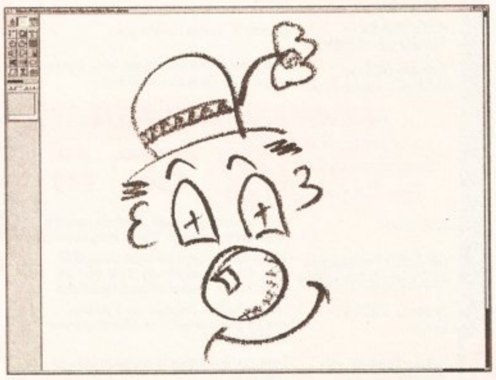
You might like to experiment a little with adding some pen strokes to the pencil tracing, to slightly darken areas that are in shadow, or to outline or highlight a particular detail, or simply to add words, lines or arrows. If you, before adding the pen strokes, first print the scan of the tracing you will be able to see where those pen strokes will have the greatest effect.

Of course there is no rule that says you have to print line art scans just in black. By loading the scan into a painting package you can add colour or greys to the graphic. The problem here is that the scan is often so large that the painting program (*Deluxe Paint, Personal Paint*...) either refuses to load the thing, or, if it does load it, it then refuses to allow you to change the graphic to even four colours, let alone more. What can be done? Well, with enough memory, a hard drive and a package like *ImageFX* or *Imagemaster*, all your problems will be solved. But if you are on a tight budget, the least expensive option will be the *PowerScan Professional 4* software. Even if you are scanning with another package, provided you have enough memory you are still able to import the scans into *PowerScan 4*, and because *PowerScan 4* was designed to be used with large graphics and has a few painting tools built into it, you are able to tart up your line art scans.

STRAIGHT UP

One weakness of hand scanners is that without a special scanning tray it is difficult to scan in a straight line. This may not matter much when scanning drawings (anyone who notices that a cartoon is one degree off the upright is always going to find fault with something), but for diagrams and logos it may be of extreme importance that horizontal and vertical strokes or edges are absolutely horizontal and vertical. Alas, there is no magic wand that I can wave to set you straight, if you'll forgive the pun. With patience and practice you will get better at it. The technique I use is to look over the front of the scanner head and align the front edge of the scanner with a horizontal line in the original, as close as possible to the the top of the original. Then, after the scanning light has illuminated but before pressing the Start button, I very gently push the scanner forwards until I can see through the viewing window that I am above the top of the scan. Then I start the scan.

Hand scanning is by far much more accurate if you are scanning on a completely flat surface, and I ensure that this is the case by sandwiching my original between two sheets of thin glass stolen from a couple of big picture frames. Provided you keep the roller underneath the scanner free of dust and lint, it doesn't slip on the glass, although it helps a lot if you apply a little downwards pressure. Unfortunately, applying downward pressure is what normally causes you to jerk the scanning head. What I have ingeniously enough figured out is that if I stick a couple of old batteries on the head (with Blue-Tack) I only have to pull backwards, not press down. Yeah OK, they laughed at Da Vinci too.



To give your line art scans that special hand-drawn effect, draw, or trace over, them with a fairly blunt and soft 4B pencil.

If you find that no matter how much you practice you simply cannot pull backwards at an even rate, and consequently end up with flawed scans, try turning the original around and pushing instead of pulling. Different strokes for different folks and all that jazz.

WIDE BOYS

The last topic we are going to look at this month is scanning material that is wider than the scanning head. In theory the technique is simple – you scan the left half, you scan the right half, you join the two halves together. In practise, especially with scans of photographs, it is a labour of love. But there are some things you can do to give yourself an even chance of success.

First, make sure that you always pull the scanner head slowly and evenly. Practice until it hurts because if you pull a little too fast at some point, the two halves of the scan will be different heights and while something at the top of the scan lines up, something at the bottom may not. If possible, scan an overlap area of about half an inch, then anything that doesn't line up will be very obvious.

Second, naturally the two halves of the scan have to be parallel. This is possibly the most difficult part of the job, and once again there is no substitute for practice. Instead of scanning vertically and joining left and right halves, experiment with scanning across the original, and then rotating the two halves by 90 degrees so that you are joining the top and bottom halves. It depends on what you are scanning, but often a slight horizontal misalignment is easier to hide.

Third, if you can only join two halves of a scan after they have been converted to grey (as with the *PowerScan* software), then it is extremely important that the ambient light does not change between scans, otherwise the two halves will contain different shades of grey. The ambient light is the light that is shining on the original from all around you, rather than the light being shined on the original by the scanner itself. A darkened room is probably best; the light from your monitor will normally be enough to see by.

Keep in mind that you do not necessarily have to physically join the two halves to create one big graphic. It is just as feasible to import the two halves into your DTP program and overlap them in that. If you work in high magnification, 400 per cent or more, then you might find that this technique is a lot easier than trying to join the two halves in *Merge-It*, *PowerScan* or a painting or image processing program.

That's it. I'm right out of advice. Scanning material that's pure black and white (as opposed to continuous tones of grey or colour) is what mono hand scanners excel at and the trick to getting the best out of a mono hand scanner is to exploit its strengths rather than complain about its weaknesses. The secret of success is in the thought and preparation. I think it was W.C. Fields who said that the laziest man he ever met put popcorn in his pancakes so they would turn over by themselves. It was meant as a joke, but if the original designers of the Amiga hadn't put popcorn in their pancakes, I might never have had a reason to write this article. Put some popcorn in your pancakes and you will soon be telling me how to get the best out of mono hand scanners. AS

CALLERS WELCOME AT OUR BRANCHES OPEN 9-5.30, MONDAY TO SATURDAY, (10-4.30PM SUNDAYS

Hobbyte

COMPUTING
ESTABLISHED 9 YEARS

10 MARKET PLACE
ST ALBANS HERTS AL3 5DG
TEL: (0727) 856005/841396

WARNING

Due to the exchange rate, or manufacturer's changes or due to current RAM shortage, some prices may alter, either up or down, during the several weeks between going to press and the end of the month of issue. We would ask that prices be confirmed by telephone before ordering.

HOW TO USE THIS AD

Exclusively from Hobbyte, you can choose your own Amiga and software combination and still benefit from the huge savings only available from package deals. Want an A600 pack for small children? No problem! A professional pack for music or programming? It's up to you!

WE WANT TO BEAT ALL PRICES!

CALL US!!

OLD AMIGA TRADE-IN*

The best trade-in allowance, extra for peripherals and accessories. Trade in your old machine for a brand new A600/1200/4000/CD32 or even a PC.

After trade-in, equipment is checked and refurbished by our engineers and is then offered at bargain prices, complete with 3 months warranty.

A500s FROM £139
A1500s FROM £199

A600 SD/HD..........from 159
A3000s..................from 499
CDTV..............................179
A590 20/40MB....129/159
HDs + Controllers...from 179
GVP HD8 40/52......209/229
XT/AT BBoard.............50/91

OTHER ACCESSORIES - PLEASE ASK.
*Acceptance of pre-V2 machines may be limited

A4000/ 30 & 40

A4000/30: AGA Chip Set + 68030 processor, 68882 25/50 MHz co-processor option, 256,000 colours from 16.6M, scan doubling for flicker free display, Mouse, Amiga 3.5"/1.76 MB 3.5" drive, Hard Drive as below, Amiga DOS 3.0 system and utilities.

A4000/40LC: Desktop as above, but featuring the blistering 68040 processor, with full floating point facilities.

A4000/40TW: Tower with full 040/FPW/MMU processor with SCSI-II & IDE 1/Faces.

All above, full UK models with next day on-site warranty.

WITH FREE DPAINT IV AGA WORDSWORTH 2 AGA + DIGITA PRINT MANAGER

WARRANTY UPGRADES: Same Day Warranty £39.99
3yr Ext. Warranty £99.99

HD SIZE MB	A4000/30 1+1MB SUBTRACT £60	A4000/30 2+2MB STANDARD VERSION	A4000/30 2+4MB SUPER EXP. VERSION	A4000/40LC /40TW 2+2MB	A4000/40LC /40TW 2+4MB
80		[illegible]29		-	-
120/130		1[illegible]59		1589	-
214				1639	1989
240/260		1[illegible]29		-	IBE
340		[illegible]189		-	-
520/5[illegible]		1389		1879	2279
1G[illegible]		-		-	2579 SCSI-II
2.4GB		-		-	3179 SCSI-II
					SCSI-II

1+1MB: WARNING [illegible] A+0[illegible] not run most serious AGA s/w packages, [illegible] subtract £70 from 2+2MB prices

2+4MB: ADD £80 • ADD £80 • ADD £80 — 2+4 MB version comes with 2MB chip RAM + one [illegible]MB chip of fast RAM, for on-board expansion to [illegible]

EXTRAS: Extra 2MB for 2+2 versions £99 • Extra 4MB for 2+4 versions £159 • 68882 copros - see "Expansion" (across) • 128MB SCSI Optical Drive for backups £599 • Microvitec Autoscan 1438 monitor recommended £290

PRICE CHANGES TELEPHONE FOR INFO

SEE 'EXPANSION' SECTION OPPOSITE

CD32 CONSOLE

SPECIAL

Choose any* 3 CD discs (see software section) for **£59.90** *up to £34.99 RRP each

CD32 SOFTWARE

Over 75 titles specially written for the CD32 should be in stock (phone for list), inc. Syndicate, Zool 2, Jurassic Park, Chaos Engine, many of which include a full CD music track alongside the game. About half of existing CDTV titles are compatible. CD32 will also play normal music CDs and CD+G discs

CD32 Standard warranty is 12 months return to base.
12 months on-site warranty **£39.99**
Extra 2yrs on-site warranty **£69.99**

CD32 Console (with Oscar AGA, Wing Commander, Dangerous Streets, Diggers +Joypad FREE)

£279

Now with CHAOS ENGINE and MICROCOSM

CD32 + FMV Card as above

£425

AVAILABLE NOW!
Full Motion Video module for CD32 (with Free Music Video Disc)........................£189

COMING SOON
Floppy drive, Keyboard, Mouse CD32 for A1200

A500/600/CDTV

INCLUDED	PLUS AS STANDARD	ALONE £	STARTER £	WARRANTY	EXTRAS
A500+ 1MB	-	179.99	194.99	12 months return to base	Extra 1MB £25
A500+ CARTOON CLASSICS	Captain Planet, Lemmings, The Simpsons, DPaint III*	194.99	209.99		
A600 SD WILD, WEIRD AND WICKED	Silly putty, F1 Grand Prix, Pushover, Deluxe Paint III*, 700 clip art set	194.99	209.99	12 month at home	Extra 1MB £30 • 2Mb PCMCIA £109 PCMCIA £169 Romsharer £45
A600 HD 85 EPIC	Epic, Rome, Myth, Trivial Pursuit, Amiga Text, Deluxe Paint III*, 700 clip art set	334.99	349.99		
CBM 1084 SD	+ leads	199.90		1 year	PiP Monitor to TV Converter – £99
Microvitec Autoscan 1483	Leads. Ideal for AGA leads.	294.99		1 year	
	Needs Adaptor	19.99			
Star LC100C	Top Value 9 pin colour printer	149.99	159.99	1year	
Citizen 240C	24Pin colour	252.90	262.90	2 year	

REFURBISHED UNITS ONLY AVAILABLE

Return to base HD versions are SD units fitted with top quality 3rd party drives and come with install disc + full documentation. *DPIII needs 2MB for animation on HD models.

WITH ANY COMPUTER

CHAOS ENGINE, SYNDICATE, PINBALL FANTASIES, NICK FALDO'S CHALLENGE GOLF

ADD £17.99

OR LEMMINGS, SIMPSONS, CAPTAIN PLANET, PLUS D PAINT III

ADD £14.95

A1200

2MB Single Drive	269
+20MB HD	359
+60MB HD	419
+80MB HD	429
+120MB HD	479
+200MB HD	529
+340MB HD	679
Extra 4MB + clock fitted	ADD £200

**CBM APPROVED HARD DRIVES
Full legal installation/utility disc and documentation and come with CBM on-site warranty service.

DON'T FORGET YOUR STARTER PACK! ADD £15 (SEE VALUE PACKS BELOW)

SPECIAL
Citizen ABC 24 pin colour printer with sheetfeeder and Starter Pack ....ONLY £170

NIGEL MANSELL AGA, TROLLS AGA AND COMPILATION PAC[K] 3 (top games) ADD £9.9[9]

DESKTOP DYNAM[ITE] PACK PLUS 2 HOT LIST TITLE[S] ADD £44

KIND WORDS [...] ADD £9.9[9]

WORKS PLATINU[M] ADD £19.9[9]

"NEW" COMBAT/ INNOVATIONS PA[CK] ADD £44

NO OTHER DEALER CAN BEAT OUR CREDENTIALS

- Multi-million company with 10 years experience in Commodore product and here to stay
- Commodore trained staff are friendly and helpful and are parents, multimedia, educational, games, programming or technical specialists (usually more than one!)
- Open 9-6 pm Monday to Saturday and 10.00 am to 4.30 pm Sundays PLUS December late nights on Thursdays (St Albans only) for convenient shopping.
- Callers welcome for advice and demonstration at our 1600+ sq ft High St, Town Centre branch
- Same day despatch for most orders received by 5.30 pm; express am and Saturday services available
- Hardware carefully handled and delivered safely and reliably by caged, insured, top name courier service
- Pre-despatch testing on Amiga systems
- Free 30 day courier collection and delivery of NEW replacement.(except product with on-site maintenance)
- Hotline support and in-house engineers
- Upgrade and trade in offers to keep you up to date
- Exceptional after sales service
- BFPO and export welcome

NOT JUST ANOTHER MAIL ORDER COMPANY

For years a major player in Amiga Mail Order, Hobbyte also boast extensive expertise and experience in specification and support of multi-machine and specialist systems. Hobbyte have been recommended and trained by Commodore and successfully won major orders and support contracts from London Boroughs, MOD, educational establishments etc. We are pleased to be placed on tender lists.
This expertise is available to all our customers.

HOBBYTE VALUE PACKS

Hobbyte are famous for their packs, allowing you to choose what you want, whilst still benefitting from package deal savings.
Remember, a bargain is only a bargain when you like what you get! So, if you aren't Wild, Weird or Wicked, Sleepwalker sends you to sleep, Space Ace leaves you feeeling emp[ty], Paradroid does worse, if Basic basically isn't you, exercise your options and get real value for money from Hobbyte

TRAMPY'S AND NODDY'S PACK

Fun and educational for 2 to 11 years
(Some help may be required)

SPECIAL WITH AMIGA **£39** — ALONE **£59**

Noddy's Playtime OR Big Adventure	8 magical learning games at 3 levels, PLUS Junior Art pack, keyboard overlay and map
OR Merlins Maths	6 National Curriculum oriented games, stage 2, 7 to 11
The Shoe People	6 games with Trampy and friends, 6 years and under.
OR Fun School 2	The "Fun School" suite have won every award going. 5/6 wonderful animated games. 3 to 11 years, specify age.
Fun School 3 or 4 OR ADI Jnr Reading OR Counting	The loveable extra terrestrial entertains 4 - 7 year olds and helps towards achieving National Curriculum levels 1, 2+ 3
Deluxe Paint II + 700 Clip Art pics	Pics inc. children, Fairytale + Legend characters, Sport, Cartoons, etc.
Hobbyte Primary Educational PD Pack	Containing 10 fun while you learn games
Hobbyte 30 Easy Children's Games Pack	Simple games, or those with very easy levels. Even the youngest will be able to use some of these

SERIOUS USER'S PACK

Interested in music, programming and graphics? Then this pack is for you!

WITH AMIGA **£39** — ALONE **£49**

Easy Amos	THE programming language. Wonderful manual is simple and entertaining - ideal for complete novices
OR AMOS Professional ADD £10 for this option	97% AF rating - the second highest rating EVER given. Learn to professionally create your own games, utilities. Loads of sample progs included
Hobbyte AMOS PD Greats	Dozens of utilities, Protracker music modules, example programmes that no AMOS programmer would be without.
Deluxe Paint III, plus 700 Clip Art pics	Create your own designs to incorporate into your AMOS progs
MIDI Recording Studio & MIDI Interface	If you have a MIDI instrument, this is everything you need to compose and edit your music
OR AmigaVision	Powerful presentation and production tool

STARTER PACK

A must for new users! All you need in one value pack

WITH AMIGA **£15** — ALONE **£25**

10 blank discs	Make working copies of Workbench and other original applications discs as soon as you get them
Virus Killer	Check discs regularly, especially if sharing with friends
Mouse mat	Helps prevent dirt/dust collecting on mouse contacts

Plus Microswitched Joystick, 80 cap. lockable disc box, Dust Cover

HOT BUG GAMES PACK

The top-selling Hobbyte Hot Lot pack now includes the ultimate joystick !!!

WITH AMIGA **£44** — ALONE **£59**

"THE BUG"	The only joystick ever to be given a Gold rating 92% AF, positive single-handed action, small and lovely!
10 "Hot List" Games The GREATEST!	See listing to the right for current HOT LIST, or phone for latest changes. Children's games available.
80 Prog. Hobbyte PD Greats Pack II 10 blank discs, mouse mat, 80 capacity lockable disc box, plus dust cover	Includes top games like Battlecars, Star Trek, Computer Conflict, Megaball, dozens of arcade classics, board classics and 'shoot-em-ups', Utilities, Word Processor, Spreadsheet, Database + Desktop Publisher and the ultimate virus killers - a must for every Amiga owner!

DESKTOP DYNAMITE EXTRA

Wordsworth 2 AGA.
Deluxe Paint IV AGA
Digita Print Manager
Dennis the Menace AGA
Oscar AGA
Trolls AGA
PLUS
2 'Hot List' titles
YOUR CHOICE - SEE ACROSS

SPECIAL WITH AMIGA **£44** — ALONE **£59**

Wordsworth + Deluxe Paint IV are top packages in their fields, EACH with RRP's almost twice the total pack price. Together they can produce high quality documents including graphics in up to 256,000 colours

THE HOT LIS[T]

GREAT individu[al] packaged gam[es] BETTER THAN T[HE] REST !!
(previous RRPs u[p to] £39.99 each)
ANY 10 £29.9[9]
Or see packs across

Thunderbirds (7yrs+) ‡ - 92[%]
Silly Putty - 90%+ lots of m[...]
Elf/Toki/Puzznic (counts as [...])
Paperboy II ‡
Die Hard 2
Colossus Chess @
Challenge Golf
Battleships classic board ga[me]
Graeme Souness Soccer
Neighbours
Frankenstein ‡ @
Captain Planet
Silkworm Helicopter @ 93[%]
Tag Team Wrestling
Edd the Duck ‡
Stack Up ‡
Lemmings 92% AF
Round the Bend ‡
Fist Fighter
Sporting Triangles
World Cricket
Bart Simpson
Spiderman/Cptn America ‡
Arcade Trivia
Xenon - C+VG Game of the M[onth]
Blade Warrior - A Power, AF, A[...] superb reviews
Arnie

AWARD WINNERS
Space Ace, Kick Off, PipeMania, F[...] (counts as 2)

‡ PARTICULARLY SUITABLE [FOR] CHILDREN (MAY NEED HE[LP])
@ NOT A1200 COMPATI[BLE]
TITLES MAY VARY

*DPIII needs 2MB for animation on HD [models]

• AMIGA SPECIALISTS • STAR GOLD DEALER • CDTV CENTRE • PHILIPS APPOINTED DEALE[R]

MONITORS/ACCESSORIES

CBM 1084SD 1084/1085 + leads 194.90
CBM 1942 dual sync .28 dpi AGA monitor + speakers 339.90
MICROVITEC AUTOSCAN 1438 14" .28dp low radiation 15-40kHz for 1200/4000, infinately variable scan rates between 15KHz (default on boot-up) and 40 KHz for all AGA modes in this range.
With tilt and swivwl stand. 294.90
Microvitec Cub-scan 1440 14" .28dpi 399.90
Microvitec Cub-scan .28dpi for 1200/4000 as above, but 20" 1039.99
Microvitec Cub-scan .1782, 17", .27dpi, 29-82 KHz horiz. scan 889.99
Adaptor for A1200/Microvitec (not required for 4000) 19.99
Panasonic 1537 31-62kHz 14" 519.90
Philips Brilliance 2110 21" 1790.90
Zy-Fi Speakers 37.90
Zy-Fi Pro Speakers 57.90

FLOPPY DRIVES

Zydec 3.5 external drive, daisychain + on/off 49.90
Cumana CAX 354 3.5 external drive, beige 56.50
PC 880B with anti click + Blitz back up and virus protector, Cyclone compatible .75.99
Dual drive as PC 880B 124.99
High density 1.76MB ext. drive for any Amiga (WB 2) 98.50
High density 1.76MB ext. drive for any Amiga (WB 2) + 10 HD Discs 104.95
Power HD internal floppy for 1500/2/3 4000 .....94.90
Power HD internal floppy for500/600/1200 .....94.90
A500 replacement internal floppy 54.99
A600/1200 replacement internal floppy 69.99

HARD DRIVES/ACCELERATORS

500/2000

P HC8/80MB 239.99
P HC8/120MB 289.99
P HC8/170MB 319.99
P HC8/270MB 379.99
orce 030 40MHZ 4MB 564.99
orce 040 33MHZ 4MB 999.99
ra 2MB for above .....POA
fecta SCSI 80MB HD 234.90

000/4000

stlane SCSI II controller for 4000 .....299.90
B 40981 SCSI II 269.99
8MB int. SCSI optical drive 599.90
8MB discs for above 34.95
000 80MB 119.99
000 130MB 179.99
000 170MB 199.99
000 260MB 239.99
000 340MB 299.99
000 540MB 599.99
8 SCSI opticaldrive for backups 619.90
f fitting - fitting by our engineers ADD £15

00

30 1MB 40MB 392.00
30 1MB 80MB 489.00
30 1MB 120MB 589.99
30 1MB 213MB 693.99
30 68882 .....218.99
crobotics VXL30 25MHz 219.99
L 30 40MHz 339.99
P HD8 80MB 249.99
P HD8 120MB 299.99
P HD8 170MB 329.99
P HD8 270MB 389.99
ME HD8 REFURBS AVAILABLE.....FROM £169

A590 20MB 139.90
A500 Internal 20MB HD 184.99
A500 Internal 60MB HD 249.99
A500 Internal 80MB HD 279.99
A500 Internal 120MB HD 339.99
Trifecta SCSI 80MB HD 289.99
A570 for 2.04 1MB 500 + *FREE* Fred Fish & Hutchinsons Encyclopaedia 98.90

A600/1200

GVP M1230 II 40MHz 239.90
GVP M1230 II 40MHz 4MB 439.99
GVP M1230 II 50MHz 4MB +MMU 559.99

A600/1200 HD UPGRADES

	SELF FITTING* (on-site invalidated)	CBM APPROVED FITTING** (with on-site)
20MB	89.99	-
60MB	149.99	199.00
80/85MB	189.99	234.00
120/127MB	229.99	274.00
170MB	269.99	314.00
240/250MB	329.00	499.00

INTERNAL CLOCK .....POA
*with cable & disc ADD £14.99 for Hobbyte fitting
**Including FREE courier collection & delivery

1200 OVERDRIVE EXTERNAL HDs

Overdrive 35 NO HD 139.50
Overdrive 35 80MB HD 237.50
Overdrive 35 120/130MB HD 297.50
Overdrive 35 220/260MB HD 337.50
Overdrive 35 340MB HD 417.50
Overdrive 35 540MB HD .....POA

AMIGA 24 BIT HARDWARE

TOASTER COMING SOON!

DCTV 376.99
GVP IV + VIU-S 965.99
GVP IV + VIU-CT 1255.99
Impact Vision 24 .....POA

HARLEQUIN 32 BIT FRAMEMAKER BOARD
• **16.7 million colour** photo realistic display • **real time 24 bit animation** • **Optional Alpha Channel** - superimpose high quality graphics onto live signal, or smoothly blend paint images • **Optional Double Buffering** - 2, 24 bit displays instantly available
SUPPORTS: TV Paint, Vlab, Calligari, Sympatica, Ad Pro, Real 3D + others

H1500 1.5MB £929
H2000 2MB + Alpha £999
H3000 3MB +D/Buffer £1099
H4000 4MB + Alpha +D/Buffer £1279
Genlock £199

*SPECIAL £400 OFF
*H2000 Plus £1479
*H4000 Plus £1149
+ HPalFX for real time adjustment of colour, gamma, etc.

AMAZING PRICE!
PICASSO 24 BIT GRAPHICS CARD + FREE TV PAINT JUNIOR **£324.99**

PICCOLO 24 BIT GRAPHICS CARD
16.7 million colours, on-board blitter, IMB exp to 2MB video RAM, fully programmable resolution, double buffering + multiple screen + AREXX. support. Supports leading graphics packages/applications. With FREE TV Paint Jnr **£379.99**

RAINBOW III 24 BIT GRAPHICS CARD + VIDEO CONTROLLER **£1489.99**
Similar to Piccolo but with 4MB video RAM, programmable resolution to 1600 x 1280, built-in video controller inc. 110MHz clock. With FREE TV Paint Jnr.

PEGGY MPEG VIDEO CARD **£479.99**
Take 24 bit animations from disc or other storage devices and replay in real-time through the Amiga! Use integrated genlock to overlay Amiga graphics for sophisticated titling and special effects, to produce stunning promotional/training videos, or games with live video footage. Near SVHS quality, 16.7M colours, MPEG tools + library functions, 25 frames/sec playback.
YC Output module for Peggy £129.99
MPeg encoder option for Peggy £349.99

OPAL VISION (for 3000/4000)
24 bit board v2+ Opal Paint, Opal Presents, Opal Hotkey, Opal AnimMATE ..**£339.99**
IF YOU HAVE PURCHASED OPALVISION, YOU MAY HAVE RECEIVED VOUCHERS AGAINST THE FOLLOWING NEW PRODUCTS., WHICH WILL BE ACCEPTED BY HOBBYTE IN PART PAYMENT
Video Processor for Opal Vision WITH VOUCHERS 647.99
Video Suite for Opal Vision WITH VOUCHERS 647.99
Scan Rate Converter for OpalVision WITH VOUCHERS 647.99
Retina 24 bit graphics card + 1MB + VD Paint 329.00
Retina 24 bit graphics card + 2MB + VD Paint 395.00
Retina 24 bit graphics card + 4MB + VD Paint 489.00
V lab 24 bit real time digitiser 1200/600/500 ext 334.99
V lab 24 bit real time digitiser 1500/3000/4000 int 289.99
V Lab 4000/3000 int SVHS 334.99
FREE V lab Framegrabber with Harlequin (see above)

EMULATION

G Gate 386sx 25MHz .....POA
GVP 40/4 for 1500 .....945.99
AT Once 214.99
386/486 Bridgeboard .....POA
Emplant Deluxe 389.90

SCANNERS & DIGITISERS

Epson GT 6500, 600dpi 24 bit A4 inc. ASDG Scan s/w + cable 689.00
Epson GT 8000, 800dpi 24 bit A4 inc. ASDG Scan s/w + cable 889.90
Power Hand Scanner, 400 dpi, 64 Greyscale, V3 Powerscan software 98.90
Power Hand Scanner 4 256 Greyscale + s/w 118.99
OCR software for Power Scanner 48.50
Power Colour Hand Scanner V4 .....238.49
Sharp JX 100 A6 Scanner + scanlab s/w up to 18 bit 469.99
Summa Sketch II A4 with s/w/A3 Tablet Digitiser 359.99/529.99

GENLOCKS/MODEMS

Rendale 8802 (1200 compat) 139.99
Rendale 8802 FMC 159.95
Rendale 8802 SUHS ("Fred") 249.99
Rendale 8806 .....469.99
Hama Genlock 292 .....283.90
Hama Genlock S290 .....689.99
GVP G-Lock 283.90
Rocgen+ 1200 compat 138.50
Rocgen Rockey 289.99
Rocgen +Rockey Bundle 419.99
Supra 2400 Modem 78.95
Supra Fax Modem 148.90
SUPRA 2400+ FAX/MODEM £148.99
SUPRA 14440 FAX/MODEM £279.00

ACCESSORIES & DISCS

A500/600/1200 printer centre 28.99
A500/1200 control centre 34.90
A600 control centre 27.90
Brickette CDTV Joystick adapt. 39.99
10 Blank DS/DD discs in box 4.99
10 Blank DS/HD discs 6.99
A520 Modulator 29.99
Amitec Modulator 34.99
Alien/Batman/T2 Joystick 10.99
Bug Joystick 11.99
CDTV Keyboard 54.99
Zy-Fi Speakers 37.90
Zy-Fi Pro Speakers 57.90
50 Blank DS/DD discs 17.99
50 Blank DS/HD discs 27.99
Disc Expander 34.90

EXPANSION

A500 512k Ram Exp+Clock 21.99
A500+ 1MB exp 29.99
A500+ 2MB, exp. to 8MB 149.99
A601 .....37.99
A600/1200 2MB exp (card) 115.99
A600/1200 4MB exp (card) 169.99
CDTV 1MB exp + Super Agnus 157.99
A500 Rom Sharer 1.3 .....37.95
A500 Rom Sharer 2.04 .....38.95
A600 Rom Sharer + 1.3 .....49.95
A2065 Ethernet Card 229.95
PC1208 bare + dock 65.90
PC1208 2MB 137.90
PC1208 4MB 197.90
PC1208 8MB 396.90
FPU's - SEE ACROSS
MBX 1200 bare 64.90
MBX 1200 2MB 134.90
MBX 1200 4MB 194.90
MBX 1200 8MB 379.90
FPU's - SEE ACROSS
Amitech Hawk + clock 2MB 133.50
Amitech Hawk + clock 4MB 193.50
Amitech Hawk + clock 8MB 396.50
see below for FPU's
68882 25MHz 79.90
68882 33MHz + crystal 95.00
68882 40MHz + crystal 129.00
68882 50MHz 159.90
CBM 2.1 upgrade kit 74.99
Chip fitting and board upgrade avail., by our qualified engineers .....POA

PRINTERS

2YR WARRANTY WITH CITIZEN

	ALONE	WITH STARTER PACK
Citizen 120+D	111.99	ADD £12.99
Star LC20	117.90	
Citizen 90 mono*	131.49	
Citizen 90 colour*	149.99	
Star LC 100 9 pin col	136.99	
Star LC200 col	178.49	
Star LC 24-20 II	193.99	
Star LC 24-100 24 pin	158.99	
Star LC 24-200	209.99	
Star LC 24-200 col	228.49	
Panasonic KXP 2123 col	179.49	
Epson LQ 100	179.99	
Epson LQ 570	231.99	
Epson LQ 870	469.90	
Epson LQ 1170	569.90	
Citizen ABC Mono	143.99	
Citizen ABC colour +s/feed	159.99	
Citizen S200 24*	184.99	
Citizen S200 24 col*	199.99	
Citizen S240*	224.99	
Citizen S240C col*	239.99	
Citizen S24x col*	325.90	
Star LC24 - 30 Col	218.90	
Star LC24 - 300 Col	275.49	
Citizen col Note. Printer III	269.90	

UNBELIEVABLE INKJET PRICES!!	ALONE	WITH STARTER PACK
HP Deskjet 310	196.49	ADD £12.99
HP Deskjet 310 colour	229.99	
Epson Stylus 300	214.49	
Epson Stylus 800	224.99	
Epson Stylus 1000	409.99	
Citizen Projet II	228.90	
HP Deskjet 520	239.99	
HP Deskjet 500col§	319.99	
HP Deskjet 550C§	459.99	
HP Deskjet 1200C	1149.99	
Canon BJ10SX Port	184.50	
Canon BJ 200	244.99	
Canon BJ 230 A3	329.99	
Canon BJ 330 A3	492.99	
Canon BJ 300	384.99	
Canon BJC 600 Col	519.50	
Canon BJC 800	1426.99	
Star SJ 48	191.99	
Star SJ 144	404.49	
OKI OL 400e LASER	489.90	
Panasonic KXP 4410	489.90	
Panasonic KXP 4430	639.90	
Epson EPL 5000	512.90	
Epson EPL 8100 10ppm	819.90	
Star LS 5 laser	569.90	
HP Laserjet 4L	549.99	
HP Laserjet 4 MP	1227.99	
Star LS 5ex 5ppm 2 bin	629.90	
Sharp JX 9500 9ppm	599.50	

Starter pack: 500 Sheets A4 paper, Amiga to printer lead, Universal Printer Stand & Driver
* with Print Manager

PRIMERA COLOUR PRINTER

If you've admired the saturated colours of the Mitsubishi and other thermal wax printers at exhibitions, but couldn't afford the £4000+ price tag, the Fargo Primera is the printer you're looking for. Less than a third of the price of the nearest rival,
Primera offers: • Photo-quality, rich bright colours • Up to 4 times faster than ink jet • Cost per page less than ink jet. • A4, transparencies + T-shirt transfer paper printing
COMPLETE WITH AMIGA DRIVER (WINDOWS OR MAC DRIVER IF PREFERRED) AND AMIGA LEAD £789.00
PHOTO REALISTIC KIT £209.00
PHONE FOR PRINT SAMPLES

§Studio driver/Utility (WB 2 & above) highly recommended ADD £39.95

SOFTWARE

GRAPHICS/CAD

Aladin 4D 213.99
AmigaVision 17.90
Art Expression AGA 134.90
Art Dept. Pro 2.3A 129.90
AdPro Prof Conversion 48.99
Brilliance 133.90
SPECIAL £140 OFF Caligari 24 .....94.90
Caligari Broadcast 3 .....396.90
Cine Morph 29.99
Deluxe Paint IV 53.99
Deluxe Paint AGA 59.90
Disney Animation 56.90
Distant Suns 49.49
Essence 44.50
Expert Draw 39.90
Gallery 39.49
Helm 89.90
Image FX V1.5 .....187.90
Imagine v2 .....149.99
Image Master AGA 139.90
IntroCAD Plus 46.99
Morph + ...138.99
Pixel 3D Pro 59.90
ProDraw 3 .....59.90
Real 3D Classic 78.90
Real 3D v2 .....374.50
Scala HT100 .....49.99
Scala Pro MM211 .....132.90
Scala Pro MM300 .....294.90
Sculpt Anim.4D .....AVAIL NOV 198.99
Spectra Colour 57.99
SYMPATICA II
h/ware 329.99
Software only 189.99
Take 2 .....36.90
TV Paint 24 V2.0 .....169.90
TV Paint Junior 179.99
Vista Pro Lite (2MB) 42.49
Vista Pro 3.1 (6MB) 49.99
Vista Makepath 24.99
X CAD 2000 .....90.50
X CAD 3000 .....249.99
X CAD 2 to 3 upgrade 194.99

VIDEO PROD/ TITLING

A Video + TV Paint V2 .....588.90
Adorage II 68.50
AmigaVision 17.90
Broadcast Titler High Res 138.90
NEW-Broadcast Titler AGA Super High res 139.90
Broad T Font Enhancer .....POA
Broad T Font Pack .....POA
Deluxe Photolab 51.49
Frame Machine 329.90
Deluxe Photolab 51.49
imagemaster 159.99
Montage 24 AGA .....POA
Morph+ 138.99
Pro Video Plus 137.99
Scenery Anim 4 .....48.90
Scroller II 59.99
TV Record 189.99
TV Show Pro 51.39
TV Text Pro 79.50
Video Studio 3 .....115.95
Video Director 118.90
Video Effects 3D .....POA
Video Master 49.49
Vidi Amiga 12 V2 .....74.50
VIDI OFFER - Vidi Amiga 12 with Megamix Master £97.90
Vidi 12 Real Time 154.50
Vidi 24 Real Time 224.50
Video Timelapse VTL - creates stunning timelapse sequences - flowers opening, clouds, with sophisticated light/motion etc., record trigger inc. deck controller h/ware 329.90
Software only 189.99

EDUCATIONAL

Any Fun School 3 or4 .....15.99
Any ADI 16.99
Merlin's Maths 16.99
Paint & Create 16.99
Spelling Fair 16.99
Any Noddy 16.99
See also software packs

UTILITIES/LANGUAGES

AMAX II Plus 249.99
Ami back + A Tools 59.99
Amos 3D 21.49
Amos the Creator 30.95
Amos Compiler 19.49
Amos Prof. 32.99
Amos Prof. Compiler 24.99
Easy Amos 22.49
Blitz Basic 2 .....48.90
CanDo 2.5 .....93.50
Cross Dos v5 .....29.75
CygnusEd Pro 3.5 .....69.75
Directory Opus 4 .....43.90
GB Route + ...32.50
Gigamem 47.50
SAS/Lattice C 229.99
Quarter back V6 .....48.50
Quarter back Tools Deluxe 59.99
PEGGER - Vital for graphics-users! 79.95
Fully integrated JPEG utility gives enormous hard disc space savings - 100MB of framestores will compress to under 10MB. 'Snoop' gives JPEG capability to programmes that don't otherwise support JPEG, such as DPAINT IV AGA, so they can load + save JPEG files. Amiga DOS 2 and 3 compatible AREXX, 24 bit IFF, DCTV, Toaster and Ham 8 Support. Fast, seamless background operation
True Print 24 .....47.90
VIDEO TAPE BACKUP UTILITY £57.50
Backup upto 120MB onto one 3 hour tape
Xcopy Pro 31.50

APPLICATION

Arena Accounts 82.50
Excellence 3 .....89.90
Final Copy V2 .....63.99
Final Writer 99.90
Hone Accounts 2 .....48.90
Kind Words III 17.90
Maxiplan Plus v4 .....17.90
Mini Office 37.49
Money Matters 46.99
Pagestream 2.22 .....62.90
Pagestream v3 .....219.90
AF GOLD WINNER
Pagesetter 3 AGA 41.90
Pen Pal 1.5 .....28.50
Pers Finance Man + ...29.50
Professional Page 4.1 AGA RATED as the current top DTP package by the independant magazines, 94% AF 119.49
SPECIAL ProPage 4 & ProDraw 3 -professional illustrator's Both for ONLY £159.99
Proper Grammer 35.90
Protext 6 .....109.50
Publisher 17.90
Saxon Publisher 177.95
Superbase Personal 4 .....78.90
Superbase Pro 4 V1.3 .....214.99
Typesmith 118.90
Wordsworth AGA 44.90
Wordsworth 3 .....POA
Works Platinum 38.99

MUSIC

AD 10 12 Studio 16 Sampler 349.95
Audio Engineer +2 .....189.49
Audio Master 4 .....41.49
Bars & Pipes 2 .....225.90
Clarity Sampler 124.99
Deluxe Music Const II 67.90
GVP DSS 8-PLUS 64.90
Megalosound sampler 23.90
Midi Interface 19.95
Miracle K'board/Tutor 277.99
Rombo Megamix Mstr 27.99
(see offer with Vidi 12)
Superjam 82.90
Technosound Turbo 25.50

LEISURE TOP SELLERS

Alien Breed II AGA 22.90
AV8B Harrier Assault 27.49
Battle Chess 14.99
Blade of Destiny 24.49
Body Blows Galactic AGA 23.90
B17 Flying Fortress 22.99
Campaign 22.99
Championship Manager 16.49
Elite II 22.90
Epic *9.99
F1 Grand Prix *24.99
Gunship 2000 .....24.99
History Line 21.69
Indiana Jones 23.99
Lemmings 2 .....18.90
Micro Machines 18.90
Monkey Island II 23.99
Putty *12.99
Robocod AGA 15.69
Sensible Soccer 15.95
StreetfighterII 17.49
THUNDERBIRDS!! 12.99
Their Finest Hour 5.99
Trvial Pursuit *9.99
Wing Commander 19.49
Zool 15.99
*Price applies only with Amiga hardware purchase

CDTV/CD³² DISCS

SPECIAL - ANY 3* 59.90
Loads available - Phone - inc.
Arabian Nights 11.90
Battlestorm 21.90
Case/Cautious Condor 27.90
Castles 2 .....21.90
•Cinderella 29.90
DGeneration 21.90
Deep Core 21.90
•Fantastic Voyage 27.90
James Pond 2 .....23.50
Jurassic Park 27.99
•Lemmings 8.40
Lotus Turbo Trilogy 27.90
Luna'c/Overkill 21.90
NASA Heroic Age 17.40
NOW Games 1 .....16.49
NOW Games 2 .....16.49
•Pandora 2,000 Clip Art & 99 Sounds 4.79
•Scarry Poems/Rotten Kids 32.5.0
Sensible Soccer NAGA 18.90
Super Putty AGA 11.90
•Tale of Benjamin Bunny 32.50
Whales Voyage 21.90
Winter Super Sports 21.90
Zool II 21.90
• Also CDTV compatible
*up to 34.99 RRP

NO DEPOSIT CREDIT AVAILABLE (subject to status), 29.8% APR, written details on application. All major debit cards accepted, no surcharges.

NOTE SEE WARNING TOP LH PAGE

ORDERING:

TELESALES NO: 0727 856005 FAX: 0727 834944

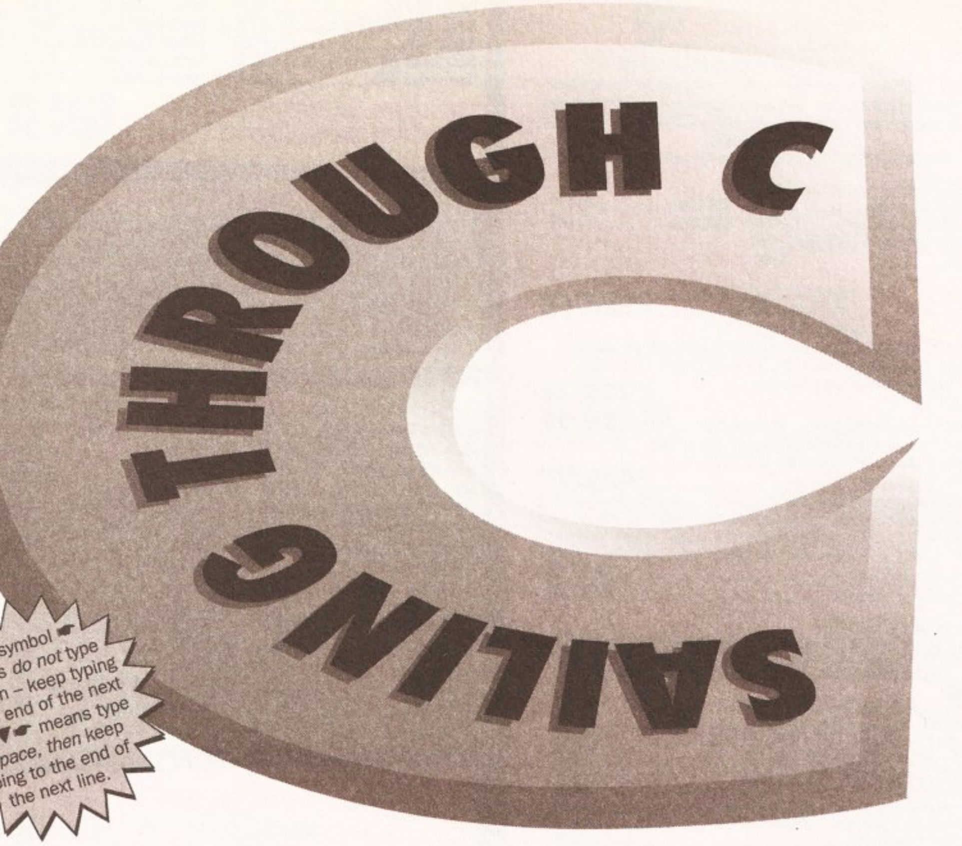
Same day despatch for debit or credit card orders placed before 5pm subject to availability. Alternatively send cheque, postal order, bankers draft or official order (PLCs, Education and Government bodies only) to; Dept AS, Hobbyte Computer Centre, 10 Market Place, St. Albans, Herts AL3 5DG. Please allow 7 working days for cheque clearance. Subject to availability, despatch is normally within 24 hours of receipt of cleared payment. Prices are correct at time of going to press, however, we are sometimes forced to change them, either up or down. Please check before ordering. Additional services and different packages may be offered in our showrooms, and prices may vary from Mail Order prices. Personal callers are asked to quote this ad to ensure Mail Order packages are offered.

DELIVERY CHARGES: UK MAINLAND (NOT HIGHLANDS)
Small consumables & software items — Despatched by post, please check charges when ordering
Other items, except lasers — Next day courier service, £10 per box
Offshore and Highlands — Please enquire
IN ADDITION WE OFFER THE FOLLOWING EXPRESS SERVICES:
Saturday deliveries — Normal rate plus £15
Am next day — Normal rate plus £8

NO DEPOSIT CREDIT FACILITIES
Credit terms at 29.8% APR (variable) can be arranged for purchases over £150, subject to status. Competitive leasing schemes are also available for businesses, including sole traders and partnerships. Just telephone for written details and application form.

TELE-ORDER (0727) 856005

• HP AUTHORISED DEALER • CITIZEN DEALER PLUS • Amiga prices, except where stated are inc. VAT. E&OE



The symbol ☛ means *do not* type a return – keep typing to the end of the next line. ▼☛ means type a space, *then* keep typing to the end of the next line.

Add ARexx support to your applications. Toby Simpson shows you how to do it in detail.

Let's have a good look into ARexx and find out what it's all about. In the next couple of pages you will find out why it could be useful for you to support ARexx in any applications you might be thinking of developing? Sounds interesting? It is, and I will show you how to do it.

AREXX IN YOUR APPLICATIONS

What is ARexx? ARexx is an interpreted computer language. This means that it's quite different from C which is compiled. As you know, your C source code is converted into machine code by the compiler before it is run, meaning that the resulting program is fast, and does not require any other special software in order to run it. ARexx is different. The source code is run directly line by line using a special program, the ARexx interpreter. This means that the programs run a lot slower, but the advantage is that you do not need to compile it first. ARexx provides powerful instructions to make use of the fact that it is interpreted, but that is the subject of another article.

So why is ARexx of interest to us? Well, it has one special feature which makes it unique. It can talk to other applications inside your computer. Depending on how well these applications have supported ARexx, this could mean that an ARexx program (called an ARexx script) is able to take over that application totally, and control it. This is great for repetitive processes. Heavy users of ASDG's *Art Department Pro* will already know just how useful ARexx can be. Let's use a small example. Say you've just rendered 300 frames of 24-bit animation for a science fiction sequence of a spaceship flying past a planet. Now you want all these frames converted to 320x200, 256 colours. Well, you could do it by hand. Alternatively, you could write a small ARexx program which loaded each frame in turn into *Art Department Pro*, converted it, and saved it out. You could watch the telly and wait for the computer to do the work for you. How about another example. What if your wordprocessor does not have a function to generate indexes? Well, if its ARexx support is good enough, you can write your own. This ability to expand applications yourself to suit your own personal needs can prove to be most valuable.

What's ARexx like? ARexx is a cross between BASIC and C in its appearance. It's very easy to learn, and can be incredibly useful for a lot of applications, such as the examples described above. So, how do you set about adding ARexx support to your program? Well, unfortunately it's not exactly easy. It's definitely worthwhile making absolutely sure that you need it. Read a little about ARexx, see what it can do, and then try and establish what it would give to your application. In its most basic form, adding ARexx support to an application entails creating a list of commands which will be used to control your application. ARexx programs will then use these commands to talk to you. The ARexx programmer first says "I'd like to talk to application X in particular" by specifying the name that you have given your "ARexx port", and then issues commands. Your application will process these, check if they are valid and then perform an appropriate action. Your "ARexx Port" is the name for the communications port that ARexx talks to you through.

How about our Address Book Application, if we wanted to add ARexx support to that, what could we do? In its current form, our Address Book is hardly the most powerful program in the world. You could easily go on adding features to it till the end of time, but an alternative is to provide a flexible range of ARexx commands so that instead you can knock up small scripts to do what you wish. Here are a few of the ARexx commands we may create:

QUIT – Makes the Address Book program Exit.
GETFIELD recordnumber, fieldnumber – Fetches a particular field
PUTFIELD recordnumber, fieldnumber, data – Stores data in a particular field.

It doesn't look too comprehensive, but with these three commands alone we could do some pretty impressive things. We could write a small script in ARexx which would print out names and phone numbers on a neat list, for example.

Before thinking about ARexx, it's vital to consider the list of commands you are going to have. If, like our Address Book, you can get away with a few powerful ones, do so. As with programming in general, sit down and design it first and you'll save yourself a lot of problems in the long term.

IMPLEMENTING AREXX SUPPORT

Sadly there is precious little in the way of decent documentation on implementing ARexx support from within your program. Fortunately Mike Sinz, formally senior software engineer at Commodore Engineering in West Chester, has made all our lives easier by writing a set of routines called *SimpleRexx*.**c** which take a lot of the hard work out of adding ARexx support to your software. So how does it all work then? Well, to simplify it a whole stack, you start by initialising your ARexx port. This involves giving it a name, creating it and a few other initialisation parts. Your ARexx message port will have a signal attached to it, just like a window does. You will recall that in our address book program we work out our signal mask, and then use the Operating system call **Wait()** to wait for it to occur. Well, we make a simple change so that in addition to the windows signal, we also wait for our ARexx signal. *SimpleRexx* provides a call to get our signal bit out. We turn it into a mask and add it to the window one, a bit like this:

```
 long arexx_mask, window_mask,▼☛ signal_mask,
signals;

  ... code to initialise ARexx/Windows ...

  /* Work our our signal mask */
  arexx_mask = 1L <<▼☛
(ARexxSignal(ARexxContext));
  window_mask = 1L << (addr_window->☛
UserPort->mp_SigBit);
  signal_mask = arexx_mask + window_mask;

  /* Window opened, now wait for events */
  while (!quit_program)
    {
    /* Wait for something to happen */
    signals = Wait(signal_mask);

    /* Check if it is an ARexx signal */
    if (signals & TMData->ARexxSignal)
      /* If the below routine returns TRUE,▼☛
the program will quit */
      if (result = Process_ARexxSignal())▼☛
done = result;

    /* Now check if it was a window signal */
    etc etc ...
    }
```

References to **ARexxContext** are pointers to our special structure, which is filled in by *SimpleRexx*, and contains vital information about our ARexx

BLITS & BOBS

Did you know that the Amiga Operating System, the software which gives you the Workbench, is more or less completely written in C?

port. Note that previously we had not checked the return of **Wait()**, but now, since there are multiple signals to deal with, we have to in order to determine whether it was our window that caused the message (Such as **GADGETUP**, or **CLOSEWINDOW**) or ARexx. If it was an ARexx message, we call a further routine called **Process_ARexxSignal** which will see if the message was relevant to us. If we were adding one ARexx command called **QUIT**, **Process_ARexxSignal** might look like this:

```
BOOL Process_ARexxSignal()
{
  BOOL done=FALSE;
  struct RexxMsg *rexxmsg;
  char command[24];
  char *com_ptr;
  char *msg_ptr;
  int count;

  while(rexxmsg = GetARexxMsg(ARexxContext))
    {
    ARexxErrorLevel = 0;
    ARexxError = NULL;
    ARexxResult = NULL;

    /* This gets a pointer to the entire ARexx
line for us to process. We strip command and
 paramters from it before use. If we don't
recognise the command we set ARexxError
 to the error string and ARexxErrorLevel to 20
(Failure). Otherwise we process
        the command. In this case, if it was
"QUIT" we'd return TRUE. */

    msg_ptr = ARG0(RexxMsg);

    /* Clean up afterwards, deal with the error
if any */
    if(ARexxError)▼☛
SetARexxLastError(ARexxContext,▼☛
rexxmsg,ARexxError);
    ReplyARexxMsg(ARexxContext, rexxmsg,▼☛
ARexxResult, ARexxErrorLevel);
    }

  return(done);
}
```

Let's go through the above. Basically, it is a loop, which continues around whilst there are still ARexx messages to process. When we receive our signal, there could easily be more than one message awaiting us, just like with window processing. We use the *SimpleRexx* function **GetARexxMessage** to fetch a message. If there is one, we clear our error information, process the command, and if there was an error, we set the error information using **SetARexxLastError**. In either case, we reply to our message after processing it, and when there are no more messages, return a **TRUE/FALSE** result, depending on whether we wish the application to exit or not. (It will only return **TRUE** if we encountered the ARexx **QUIT** command). So how do we actually process our commands? Insert something a little like this:

```
  /* This sets the character pointer "com_ptr"
to point to the first character in the 24 byte
    char[] array which will soon contain our
ARexx command */
  com_ptr = command;
  count   = 0;

  /* Now we copy the command across, making
sure we don't overflow our buffer */
  while((*msg_ptr!=' ▼☛
')&&(*msg_ptr!='\0')&&(count<23))
     {
    *com_ptr++ = *msg_ptr++;
    count++;
     }
  *comchar = '\0';      /* Zero terminate the
string */

  /* Check if its our command */
  if(!stricmp("QUIT", command))
    done = TRUE;
  else
     {
    /* It wasn't QUIT, so it must be an error */
      ARexxError = "Unknown command";
      ARexxErrorLevel = 20;
     }
```

Pretty basic stuff. You can use the same sort of routines to easily extract any other information from the string you wish, and then scan it against an array of valid commands, perhaps to decide what you can process and what you can't.

We've looked at the processing of ARexx information, but as yet we have not covered the setting up of our ARexx port and, for that matter, closing it all down afterwards. Fortunately, *SimpleRexx* contains nice easy routines to do this work for you, all you need to do is supply some pretty basic information. Let's look at setting up our ARexx system first:

```
AREXXCONTEXT ARexxContext;

ARexxContext = InitARexx("ADDRBOOK",NULL);
```

Easy wasn't it? That will set us up with an ARexx port called **ADDRBOOK.1**. Should an ARexx script wish to talk to our application they use the ARexx statement **address** to set to our port-name. OK, so where did the **.1** come from at the end of our port-name? Well, this is *SimpleRexx*. It means that if we opened another shell, and ran our Address book program a second time, it would get a different port-name, **ADDRBOOK.2**. This way we can talk to either copy of the address book specifically. This may not seem too useful and, in the case of the address book, it's unlikely you'd want two loaded at once, but in some cases you do have more than one copy of the same application running. I often have *DeluxePaint AGA* running several times (although that doesn't have an ARexx port, but you get the idea). Closing down is just as straight forward. We call the **FreeARexx()** function. This stops our ARexx port from receiving messages, purges any which are outstanding, and consequently shuts the port and frees any resources which were allocated.

Armed with the *SimpleRexx* files and the above information it should be relatively straightforward to add Arexx support to your program. As you can imagine from the above, ARexx is a large subject, and we've only loosely scratched the surface, from an application developers point of view. However, as one final point, if you are thinking of adding ARexx to your program it's certainly worth learning how to use the language first, particularly dealing with its ability to communicate with other tasks. This will give you a good idea of how other commercial applications handle ARexx, and help you to implement a more flexible and versatile ARexx command set. Remember to keep your ARexx commands simple, and functional. There are several books available which can help you – *Programming in ARexx*, by Future Publishing, due out in the next few months is an introduction to ARexx as a programming language. Owners of A4000 computers will also have Commodore's ARexx reference manual.

Next month we'll be looking at **GadTools** in detail, a facility available to those of you with 2.04 and above and demonstrating with it how easy it can be to create complex gadget displays and format menus neatly.

SIMPLEREXX

SimpleRexx is not public domain, but it is freely distributable, as long as proper credit to the author is given. It should be available around and about. Those of you who are unable to get hold of it can send a stamped addressed envelope and a blank disk to **C Programming – SimpleRexx disk**, *Amiga Shopper*, 30 Monmouth Street, Bath, BA1 2BW. Alternatively, mail me at CIX as *toby*, or over the internet as *toby@cix.compulink.co.uk*.

AS

A BIT ABOUT C

C was originally developed for the Unix operating system in the early 70's. It was influenced by the language B, which shared similarities with the language BCPL. The C language got a little out of hand with numerous definitions and no set standard. The American National Standards Institute (ANSI) set about establishing one in 1983. ANSI-C, which all modern compilers are based around, was finally established in the late 80's and is what we work in now.

AREXX: A BRIEF HISTORY

ARexx stands for *Amiga REXX*. REXX is a language designed in 1979 at IBM by Mike Cowlishaw. When designed, it was created to be a language that was easy to use and learn and yet remaining extremely flexible and powerful. REXX was extensively used on IBM mainframes during the 80s, mainly as a general scripting language for applications, and was ideally suited to work on the multi-tasking Amiga. In 1987, William Hawkes ported ARexx to the Amiga and started selling it for 1.3 users. Commodore first decided to bundle it with 2.04 and above of the Amiga Operating System and, as third party application support for the language grew, it slowly became an integral part of everyday life for many Amiga users. I can't help wondering if the pre-historic version of ARexx would have been called T-Rexx. Then again, maybe not.

Some mags leave you feeling like you're looking on from the periphery. With AMIGA SHOPPER you can

Dive right in!



EIGHT GOOD REASONS WHY YOU SHOULD SUBSCRIBE TO *AMIGA SHOPPER*

1. No disappointments. You make sure of your copy each and every month – guaranteed!
2. Your copy is delivered direct to your door – no more queuing at the newsagent's.
3. For no extra cost you'll receive an exclusive subscribers' newsletter every month, packed full with fascinating behind-the-scenes information.
4. Beat inflation – you are guaranteed no price increases for a full 12 months.
5. You pay no more for any higher-priced issues with special cover-mounted promotions.
6. If you use the handy direct debit form, you save a whopping £5 off the news-stand price.
7. With direct debit, there are no more forms to fill in when your subscription runs out – we'll do all the work for you.
8. And, of course, you'll receive a specially-designed *Amiga Shopper* binder, worth £4.95, absolutely free.

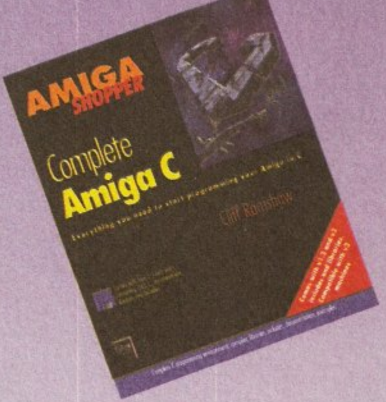


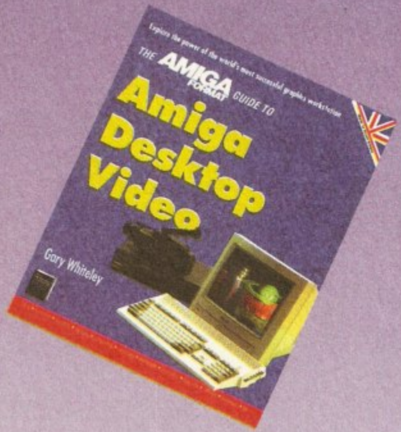
Don't settle for shallow reporting – guarantee your in-depth Amiga coverage every month.

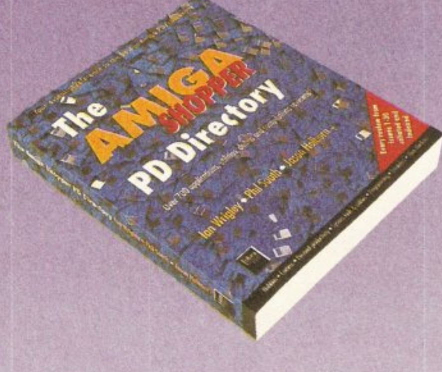
Future Leisure Books

From the makers of the UK's top 'serious' Amiga magazine AMIGA SHOPPER

Books to help you get the most out of your machine







Size 185mm (W) x 223mm (H) **Pages** 300 **Disks** 4 **Price** £24.95 **ISBN** 1 898275 10 6 **Softback**

Complete Amiga C

Here, in one single package, is everything you need to start programming in C:

- 300-page book on C programming by Cliff Ramshaw, editor of Amiga Shopper magazine
- The full version of top shareware C compiler DICE
- On-disk documentation
- Version 1.3 and version 2 'includes' and 'libraries' (compatible with version 3 machines but without version 3 features)

The book comes with four disks mounted inside the back cover, and full installation instructions are printed in the book. Our aim was to produce in a single, affordable package, everything you need to get started in C programming on the Amiga.

☐ I would like to order __ copy/copies of 'Complete Amiga C' at £24.95 each (Order no. FLB106A)

Size 185mm (W) x 223mm (H) **Pages** 300 **Disks** None **Price** £19.95 **ISBN** 1 898275 08 4 **Softback**

Amiga Desktop Video

The Amiga is the world's premier low-cost graphics workstation. But its basic power, built-in expandability and ever-widening range of quality software and add-ons mean it's capable of highly professional results.

Find out how to title your own videos, record animations, mix computer graphics and video, manipulate images and more in this comprehensive guide to the Amiga and video.

The author, Gary Whiteley, is a professional videographer and Amiga Shopper magazine's 'tame' desktop video expert. In this book he explains desktop video from the ground up – the theory, the techniques and the tricks of the trade.

- Includes a comprehensive glossary of desktop video jargon and terminology, plus a list of suppliers and recommendations for further reading.

☐ I would like to order __ copy/copies of 'Amiga Desktop Video' at £19.95 each (Order no. FLB084A)

Size 185mm (W) x 223mm (H) **Pages** 500 **Disks** none **Price** £14.95 **ISBN** 1 898275 11 4 **Softback**

Amiga Shopper PD Directory

Commercial software is expensive. Which is why more and more users are turning to the public domain/shareware market for their software.

But how do you find out what's available? And what it does? And whether it's any good?

You find out here!

The Amiga Shopper PD Directory has been assembled from the first 30 issues of Amiga Shopper magazine. All the PD/shareware reviews since issue 1 have been collated, compiled and indexed in a single 500-page volume.

Programs are divided into categories, reviewed and rated. We name the original suppliers of the programs and we've also included a directory of current suppliers at the back of the book.

Get this book and save yourself £££s!

☐ I would like to order __ copy/copies of the 'Amiga Shopper PD Directory' at £14.95 each (Order no. FLB114A)

How to order direct from us

☆ These books are also available in all good bookshops ☆

1 Choose the book/s you want.

2 Tick the appropriate boxes

3 Put your name here ....

4 And your address here ....

....

..........................Postcode ....

5 And sign here ....

6 Tick your method of payment (Please make all cheques payable to Future Publishing Ltd.)

☐ Visa ☐ Access ☐ Cheque ☐ P/O

7 If paying by card, quote your card number…

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

8 …and its expiry date _ _ _ _

9 Tick this box if you do not wish to receive direct mail from other companies ☐

10 Now send this whole page (or a photocopy) and your payment/card details to the address printed below.

EEC Customers registered for VAT must quote their registration number when ordering:

....

You will not need a stamp when you post your order and postage and packing are free. There are no extra costs. please allow 28 days for delivery.

Future Leisure Books, Future Publishing Ltd, Freepost (BS4900), Somerton, Somerset TA11 6BR

SOFTWARE for free

Graeme Sandiford greets you at the door of the exciting world of Public Domain software, where indispensable utilities can be found for little more than the price of a floppy disk.

This month we've got a great selection of programs under scrutiny. We take a look into the past, to the fateful voyage of the *Titanic*. We also find out how your Amiga makes sounds, take a tour of the Solar System and examine a useful implementation of Commodore's *AmigaGuide*. If that's not enough we've got a profile of Roberta Smith, giving you an idea of what it is like running a PD library.

DYNAMIC SKIES V1.0

PD-Soft Disk V1265

Dynamic Skies is a rather nifty astronomy program. It has an excellent interface and a wide range of features. *Dynamic Skies* offers several views, including views of deepspace objects and planets. It also has animation facilities and the usual information about the planets of the Solar system. You can specify any period of time, and *Dynamic Skies* will attempt to calculate the positions of the planets and stars included in the program's library.

You can explore the night sky by scrolling around the screen using the four arrows on screen, or alternatively by entering values in the fields for **Latitude** and **Longitude**. If you are trying to locate a particular object, you can make use of the program's **find** function. There are two methods of searching for objects: the first will simply ask you to input the object's name and will then proceed to set about tracking it down. Alternatively, if you're not quite sure of the object's name, you can search for it by **Constellation.** This function will provide a list of constellations and, in turn, a comprehensive list of objects that can be found in the chosen constellation.

When it comes to move through time you can **Advance**, or **Go Back** in user-defined units. This can be a number of years, days, hours, minutes or even seconds. Animations can be defined over a period, from a still view, or by movements through space. Among the other options for your animations you can use a technique called **remanance** which do not clear the screen after each frame. This will make the tracking of an object's movements easier.

The program's interface is extremely intuitive to use. You could quite easily use the program without reading its manual and still have little difficulty in moving about. There are plenty of self-explanatory icons and buttons. I could spend hours just scrolling around the galaxy, clicking on stars and reading about their names and types – sad, I know. This program also has all the usual gubbins as well, such as details about the Solar system's planets, their sunrise and sunset times and so on. It also has a tool for calculating the distances between planets or the Sun. There are plenty of other extremely useful tools as well, and even more in the registered version including a much larger star library.

Program Rating 92%

CRAIG HOLMES' VIRUS CHECKER COLLECTION 1.1

Holmes Brothers

As Judge Dredd says, "You can never have too much protection." This is especially true when protecting your computer from the threat of a nasty virus infection. Craig Holmes has put together a comprehensive collection of some of the most popular virus killers.

Between them, the virus killers protect against most forms of viruses and Trojan Horse programs. The collection includes *Virus Checker 6.34*, *Virus Z II* and *LVD 1.75*.

Virus Z II has been designed to be a no-nonsense virus killer. It just sits there quietly and gets on with its job without the need for configuring various options. It will check files for link viruses, whether the files are crunched or not, and remove all of the virus links from a file in one go.

Virus checker 6.34 also checks crunched files for viruses. It has now added *DM-Trash*, *Dag creator*, *Satan*, *Soapaulo* and *Starcom* to the already comprehensive list of viruses and Trojan Horse programs it recognises.

LVD specialises in link viruses and Trojan Horses. It attempts to stop link viruses from running, rather than removing them after they have been activated. To do this is it needs to be positioned fairly early in your startup-sequence. Once activated, *LVD* will check every executable file before it is run.

This collection, and updates, to the programs, is really all you need to make sure your data is truly well safeguarded.

Product Rating 76%

AGA EXCHANGE 1

One of the darker aspects of human nature can sometimes be evoked by the release of a new computer. Apparently, some people think that just because their computer has more colours and a faster processor, their machine is better than someone else's. Perhaps this explains the recent emergence of user groups and PD libraries devoted to AGA-machines.

The *AGA Exchange* is both a PD library and a User Group. In six months it has already built-up a respectable collection of AGA Demos, utilities, slideshows and games. It has also produced a catalogue disk with some useful programs and files included on the disk.

BEGINNERS START HERE

It's all to easy to become confused when purchasing PD, what with Freeware, PD, Shareware, Licenseware and even Giftware!

● PD stands for Public Domain, it's by far the most widely available kind of software discussed in this section of the magazine. It's basically free, the only condition that is usually required is that the program and associated files are unaltered, and that only a nominal fee is charged for disk duplication and postage.

● Shareware is intended to be of commercial quality, it is released freely for users to try before they buy. This concept relies heavily on an individual's moral obligation to pay a registration fee if he finds the program useful, or be plagued by a guilt-ridden conscience for the rest of his days. As most users have a propensity to forget to register programs, many authors have resorted to producing limited versions that have a few functions disabled.

● Licenseware, on the other hand is part way between the two. It is of higher quality than PD but will usually cost less than its registered Shareware counterpart. There is no registration fee to be paid, but, it is usually available from a Licenseware outlet for a slighter higher price than PD software.

● Freeware, as the name suggests, is free. It's pretty much the same as PD but you can do with it as you will, again only a nominal fee can be charged.

● Giftware is pretty uncommon. On occasion a program's author may ask that you send him/her some token gift, the most popular being postcards of your home town.

You may be wondering, "If I find a useful program in the Public Domain can I make a copy for my best mate, without getting busted by FAST". The answer, on the whole, is yes. But, you can't distribute registered Shareware or Licenseware.



Use one of the example JPEGged images from the AGA Exchange to show off the graphical power of your AGA-Amiga.

There are two utilities on the disk, *VirusChecker* and *Viewtek*. You're probably already familiar with *VirusChecker*, and if you're into graphics you should become familiar with *ViewTek*. *ViewTek* is an extremely useful picture viewer that displays and converts pictures up to 24-bit quality.

There is in addition a news section and a review of Commodore's 1940 monitor. Also of real interest is an interview with Dave Haynie of Commodore that was held on the Portal Online System in the Amiga Zone.

The library has a good selection of disks that will increase in size and quality as more programmers explore the 1200's and 4000's great potential.

Product Rating 69%

AMIGA-HOLICS ISSUE 14

Amigaholics is a popular disk magazine that covers a range of topics and includes several programs, tutorials hints and tips and graphic files. The magazine comes on two disks, each of which is almost completely full.

It's definitely an enthusiast's magazine run by enthusiasts, and this shows in the large variety of topics and the very friendly writing style. You'll find that no matter what your interest in the Amiga is, there is something interesting for you to dig into.

In the **Gallery** section there is a selection of computer generated images and animations. These are of varying standards, with fairly basic pictures and some good raytraced images. There has been an on-going *Deluxe Paint* tutorial over the last couple of issues and, although there was not room on this issue for the tutorial, there is a running example of the tutorial so far.

If you're interested in getting more out of the Amiga's Shell, then you will find the **Hackers** section of use. It is in the form of an Amigaguide document, so you can easily move about the text, jumping from node to node. This area of the magazine is split into two main parts; the **Tips** and the **Useful Scripts** sections. The most useful of these two sections is the **scripts**. The **scripts** included will perform a number of tasks such as reading all the documents in a directory, producing a list of things to do, a telephone directory and other functions. There is also a handy utility for altering your User, or startup sequences, without having to edit them manually. Part 3 of the magazine's AmigaDos manual is also included in this issue and covers a great number of commands.

If programming is your thing, you'll welcome the opportunity to examine some examples of ARexx and AMOS programs. For users of AMOS, there is a *Yahtze* clone game for you to experiment with. The ARexx scripts are in a similar vein to the AmigaDos ones, with reminders being the favoured flavour of the month.

The **Goodies** section comprises several small programs. Perhaps the most useful program in this section is the *PPGuide*, which will view documents in the guide format that have been **PowerPacked**. One of the fun programs is *SnowFall*. This will load a picture and simulate falling snow. It does this by allowing the snowflakes to pass through any area of the screen that is of the colour 0 (usually black), and settling on the other colours.

Other **Goodies** include *DLD* – a file decruncher, *CMore* – a document reader, *ReqMes* – opens a **requester/window** at your current mouse position, and *Intoxicated* – which, as far as I can tell, does very little. There are also other programs in this issue, but we can't really fit them all in. You can obtain a copy of this magazine by writing to *Amigaholics* or from most PD libraries.

Product rating 70%

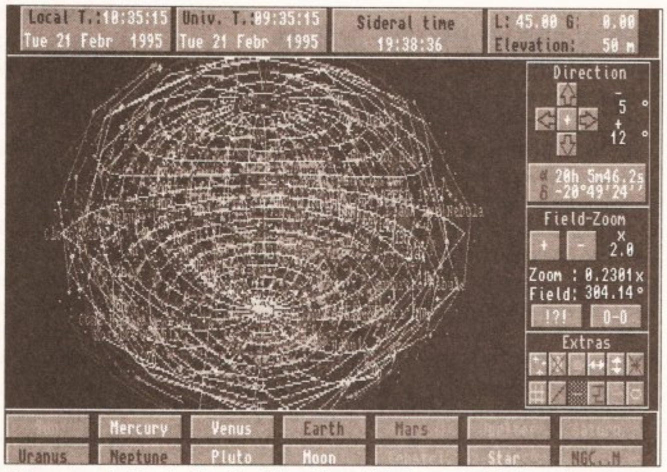
HOLMES BROTHERS PD COMPILATION (ISSUE 7)

Unfortunately, I think issue 7 of the *Holmes Brothers PD Compilation* is a little disappointing. It contains *VirusChecker 6.34*, as mentioned in the *Holmes Brothers Virus Collection*. Also included is a version of *Tanks*, a truly classic two-player arcade-strategy game.

SuperDuper is a disk formatter and copier. What's more, it's fast – very fast, hence the name *Super*.

Perhaps the only redeeming programs to be found

continued on page 91



Take your Amiga to the final frontier with Dynamic Skies. It's one of the best PD astronomy programs available.

PUBLIC PERSONALITY

ROBERTA SMITH DTP

Ever wanted to know what goes on behind the scenes of an Amiga PD library? We called an expert in the field, Roberta Smith of Roberta Smith DTP, to find out what her opinions are on running a PD library.

Roberta Smith DTP **has been churning out good-quality PD for around four years now. The library now has a substantial number of disks, somewhere between 6,000 and 6,500. As you may have guessed from the library's name, it has a strong leaning to the Amiga's graphical side, and is often among the first libraries to obtain DTP and graphics PD.**

The library was started by Roberta and her husband Roy, but now it has quite a few people helping out. The library's list of associates is as varied as it is large. It includes Ray, Shaun, Charlie and Nan, who is a very young 60. Roy and Roberta's 4-year old is not left out either – she gets to try out some of the educational software!

How does running a large PD library effect your day-to-day life?

One of the drawbacks of running a library is the amount of time it takes up. You have to be on call for the greater part of the day, every day. As a result, it's very hard to be able to go on holiday for any length of time.

What is part the most rewarding part of running a PD library?

Having contact with fellow Amiga users is always a great experience, as is viewing creative efforts made on the Amiga, especially by the young. Sharing great new software we've found with others is also extremely rewarding.

What are some of the more unpleasant tasks you need perform to keep the library running?

Cataloguing disks can be quite time consuming, especially now that the library has grown so large. Perhaps the most unpleasant aspect to running a PD library, and computing in general, is making sure the disks are free of viruses.

Which PD program do you use most?

SID (the popular file utility).

0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582

The Centre of T

WTS Electronics Ltd, Chaul End Lane, Luton, Bedforc



AMIGA 1200 PACKS

32-bit 68020 full power
Two joysticks & mouse
Free paint package software
Mouse mat

A1200 standalone **£274**
A1200 with 20MB **£354**
A1200 with 40MB **£384**
A1200 with 60MB **£410**
A1200 with 80MB **£439**
A1200 with 120MB **£473**
A1200 with 200MB **£544**
Combat/Innovations pack add to above **£45**



AMIGA 4000 PACKS

AGA chip set
68030/40 processor
Co-processor option
2MB/4MB RAM

A4000 030 with 80MB HD & 2MB **£899**
A4000 030 with 80MB HD & 4MB **£999**
A4000 030 with 120MB HD & 4MB . **£1069**
A4000 040 with 120MB HD & 6MB **£1999**
New A4000 Tower Systems .... **£POA**

A1200/A600 HARD DRIVES



Easy to install 2.5" upgrade kits
Full instructions and cables where necessary
All drives supplied with formatting instructions and software
Free fitting available- phone for details

20MB HD upgrade kit.......... **£85**
40MB HD upgrade kit.......... **£135**
60MB HD upgrade kit.......... **£156**
85MB HD upgrade kit.......... **£169**
120MB HD upgrade kit.......... **£199**
200MB HD upgrade kit.......... **£270**

HIGH CAPACITY HD'S

These prices include collection, delivery and free fitting, all guaranteed 3.5" drives. Phone for details.

250MB **£249** 340MB **£389** 540MB **£539**

AMIGA CD-32



CD³² Spectacular Voyage inc. Chaos Engine, Micronism.......... **£279**

New full motion video, allows video CD's to be played on the CD³² ---- **£197**

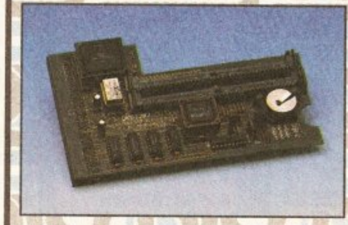
Lead for CD³² to 1085 monitor **£14.99**

AMIGA 600

A600 Wierd, Wild & Wicked pack Includes Delux Paint 3, Micoprose Grand Prix, Silly Putty, Pushover and further free software

A600 W,W & W **£196**
A600 W,W & W with 20MB HD . **£276**
A600 W,W & W with 80MB HD . **£359**
A600 W,W & W + 1.3 ROM....... **£218**

A1200 PRORAM



High quality memory expansion
Easy to fit full instructions
Co-processor option
ProRAM 1200 simply slots into the expansion port under the trap door

ProRAM 1200 2MB.......... **£169**
ProRAM 1200 4MB.......... **£209**
ProRAM 1200 8MB.......... **£289**

ProRAM PCMCIA A600/A1200
2MB **£109**
4MB **£159**
ProRAM 1MB A600 .... **£32**

MONITORS



14" Hi-Res colour display
Complete with cable
Includes integral stand
Full UK warranty

Commodore 1084/1085s.......... **£194**
Philips 14155A monitor/TV....... **£184**
Micro Vitec .28 1438 inc. stereo . **£309**
A1200 SVGA monitor **£228**
(display hi-productivity modes, not default)
Commodore 1940.......... **£284**
Commodore 1942.......... **£334**
Tilt & Swivel stand **£6**
Monitor dust cover **£4.99**
1.5m monitor ext. cable.......... **£14.99**
(Simply add £28 for workstation of your choice when purchasing the above)

WORKSTATIONS



Ergonomically sound
Facilitates up to three external floppy drives
Made in the UK
Strong and robust
Aesthetically pleasing
Keep your desk neat and tidy
Supplied complete and assembled with free mouse mat

A500 Workstation **£34**
A600 Workstation **£32**
A1200 Workstation **£34**
Workstation coverall dust covers.... **£7**
Mouse House.......... **£4**

PERIPHERALS



100 Capacity lockable disk box. **£5.99**
Squick mouse.......... **£13.99**
Mouse mat.......... **£1.99**
TDK high quality DSD(10) disks **£9.99**
Computer Mall DSD(10) disks **£6**
Jet Fighter joystick.......... **£13.99**
Apache joystick.......... **£6.99**
Python joystick.......... **£9.99**
Zipstick joystick **£14.99**
Zi-Fy speakers.......... **£36**
A500/A600/A1200 dust covers .. **£4.99**
A500 modulator.......... **£36**
Bug joystick **£13.99**
4-Way mains extension block.... **£7.99**
TV RF lead **£4.99**
A500 internal replacement drive .. **£47**

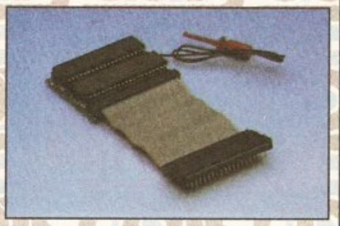
SCANNERS



Allows image processing in a useful and unique fashion
Comes complete with manual
One of the fastest growing applications for home and professional users
High specification coupled with cost effective pricing
64 greyscales 100-400DPI
Fully compatible with Delux Paint 4
Advanced software

Power Scanner 3 (A500/A1200) .. **£102**
Naski mono (A500) **£89**
Power Scanner 4 .... **£116**
Power Scanner colour 4.......... **£229**
Epson GT-6500 (inc.software) **£599**

PRO ROM SWAPPER



Swap between Kickstart chips
Fits A500, A500+, A600, A1500
Auto swapping via keyboard control
Flexible cable allows the swapper to work in conjunction with accellerators
Simple to fit- full instructions

Pro ROM Swapper.......... **£18**
Pro ROM Swapper+ 1.3 ROM **£35**
Pro ROM Swapper+ 2.04 ROM..... **£40**

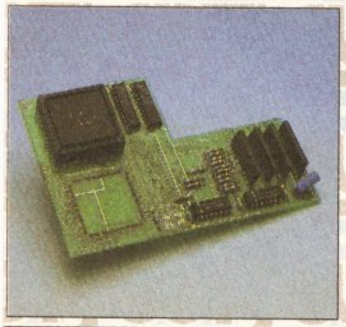
KICKSTART ROMS

KickStart ROM 2.04.......... **£24**
KickStart ROM 1.3 .... **£17**

0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582 491949 • 0582

hnical Excellence

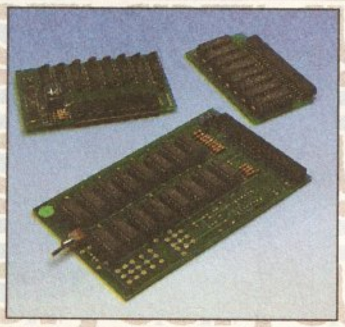
LU4 8EZ Telephone (0582) 491949 (6 Lines) EST 1984



PRO AGNUS 2MB

Provides a full 2MB of Chip Memory for the Amiga 500 and A1500/2000 • Designed and built in England • Supplied with 8375 Obese Agnus • Includes 2MB Memory on board in the form of low power Zips • Allows the processing of elaborate animation and sound sampling • Provides the same max. chip memory as the A1200/A4000 & 500+ • Increases addressable memory space from 9MB to 10MB • Complete with full instructions and flying leads • British made

Pro Agnus 2MB....................£129
(Free fitting available - phone for details)



A500 MEMORY EXPANSIONS

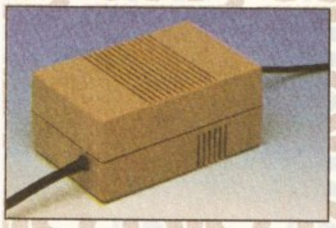
A500 Pro-Ram 0.5Meg Upgrade
Allows 1MB software to run
Chip memory compatible
British made

Without clock £16
With clock £19

A500 Pro-Ram 1.5Meg.Upgrade
Gives a full 2MB of memory....................£78

A500+ 1MB Meg Upgrade....................£29.95

POWER SUPPLY UNITS



Allows the addition of peripherals without damage to computer or power supply
Why risk damaging your expensive kit when one simple investment will ensure total peace of mind now and for the future
Switch mode design
Full crow bar projection
British made

A500 Power supply unit..........**£44.95**
A1200 Power supply unit..........**£54.95**
A600 Power supply unit..........**£44.95**
A590 Power supply unit..........**£44.95**
GVP HD Power supply unit.....**£49.95**
CD32 Power supply unit..........**£44.95**

3.5" EXTERNAL DRIVE



High Quality
Renowned and proven reliabilty
Anti-click
Long moulded cable
Slimline design
High impact plastic

Cumana external drive....................**£57**
Cumana external drive + 100 capacity disk box **£61**
Cumana external drive + 100 capacity disk box 20 blank disks ..**£66**
A500/A500+ Internal replacement disk drive....................**£47**
A600/A1200 Internal replacement disk drive....................**£59**
A2000 Internal replacement disk drive....................**£57**

COLOUR PRINTERS



High quality premium range of Amiga printers
Two year manufacturers warranty
Complete with cable
Citizen registered for dealer plus service

Swift 90 Colour **£157**
Swift 200 Colour **£189**
Swift 240 Colour **£219**
Panasonic KXP 1170 Colour.......**£135**
(9 pin 80 column, 192CPS Draft)
Panasonic KXP 2123 Colour.......**£205**
(24 pin 80 column, 192CPS Draft)
HP Deskjet 500 Colour **£285**

CHIPS & SPARES



KickStart 2.04 ....**£24**
KickStart 1.3 ....**£17**
KickStart ROM Swapper....................**£18**
(Swap between KickStarts)
Fatter Agnus 8372 ....**£24**
Obese Agnus 8375 ....**£39**
Hi-Res Denise **£16**
1MB x 9 Simms (3chip)....................**£39**
1MB x 4 Zips **£19**
8520 CIA....................**£7**
32 Simm 1MB **£62**
32 Simm 2MB **£104**
32 Simm 4MB **£149**
32 Simm 8MB **£289**
A500 modulator **£36**
Replacement mouse....................**£13.99**
A500 Internal Disk Drive **£47**
A600/A1200 Internal Drive **£59**
3.5" IDE/2.5" IDE cable **£19.99**
Spike surpression plug **£14.99**

STOP PRESS
NEW INNOVATIONS

Now the power of the modem is within your grasp with the advent of these cost effective Pro range of hi-spec modems. Auto-dial auto-answer, Hayes compatible.

Pro 2400 FP - Fax Modem v22, v22 BIS, V21, V29, V27 TER, 300-2400 BPS/Fax 9600.....**£79**
Pro VC144E - Fax Modem v22, v22 BIS, V21, V29, V27 TER, V32, V32 BIS, MNP1-5 ....**£189**
All modems inclusive of Comms software, leads and power supply.

How to make your Amiga into a robot controller - Ask for catalogue

SALES HOTLINE 0582 491949 (6 LINES), 0480 471117 (24HR), FAX 0582 505900

Credit card ordering by phone is easy. Simply phone our sales hotline quoting your credit card number., expiry date, name and address and the products you wish to order and we'll do the rest. Alternatively write the above details on your letter when ordering by post.

When ordering by post in cheque form please write your cheque card guarantee number on the reverse of the cheque and send along with your order. Postal orders are also accepted.

MINIMUM ORDER AMOUNT £15.00
NO DELIVERY CHARGES TO UK MAINLAND. Should you wish your order to be sent by courier service please add £5. this method secures the item with full insurance, not express.

WARRANTY: One year warranty return to base. **ONE YEAR EXTENDED WARRANTY**: Available on all products at 10% of purchase price when ordering.

Where to find us!

Head Office
WTS Electronic Ltd
Chaul End Lane
Luton
0582 491949

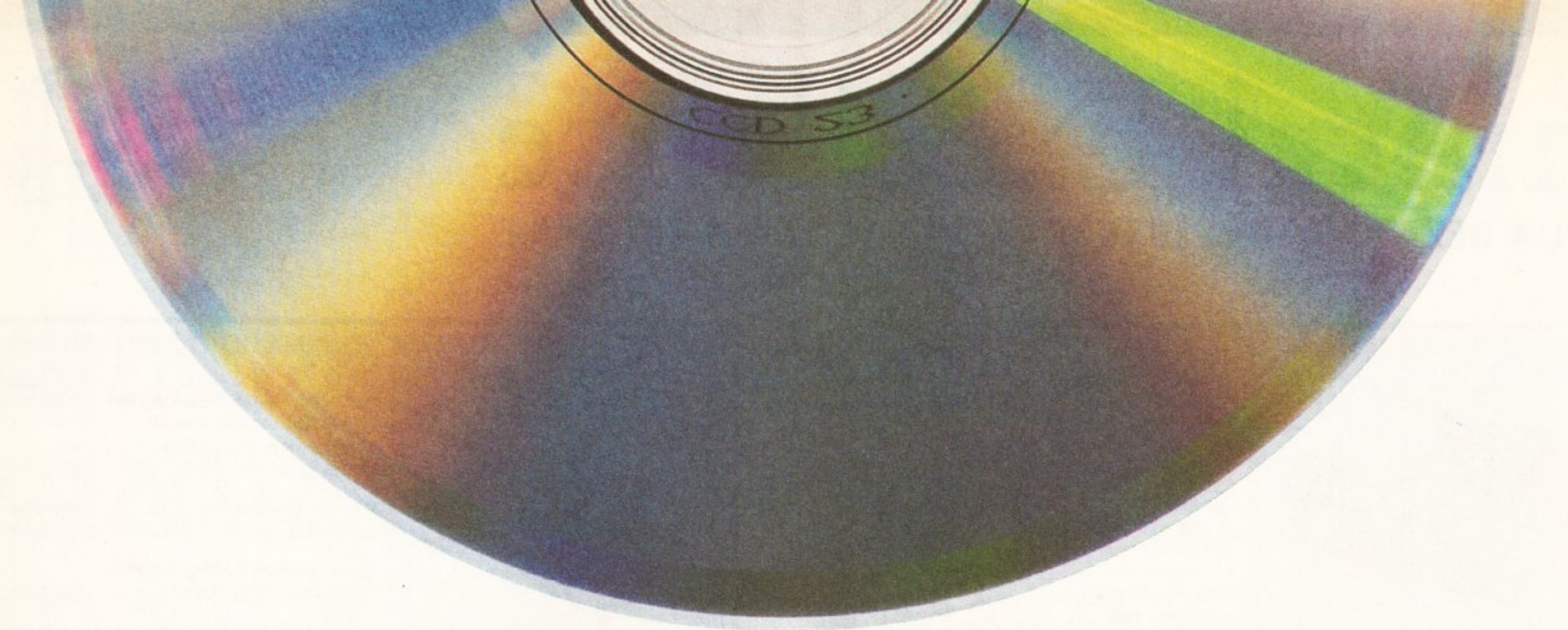
Computer Mall Bedford
The Harpur Centre
Bedford
0234 218228

Computer Mall St.Neots
Priory Mall Shopping Centre
St.Neots
0480 471117

Computer Mall Hertford
49 Railway Street
Hertford
0992 503606

Computer Mall Dunstable
84 High Street North
Dunstable
Bedfordshire
0582 475747

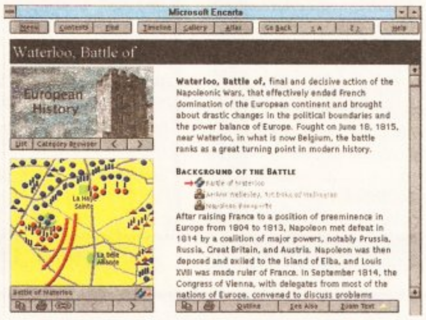
All prices quoted on products advertised are subject to availability. WTS reserve the right to amend prices or substitute suitable product without prior notice. Strictly payment with order. Please allow 28 days for delivery. Due to availibilty and the te chnical nature of some products even when in stock delays may occur in excess of 28 days.E & OE.



Feed your brain.



Educate.



Inform.



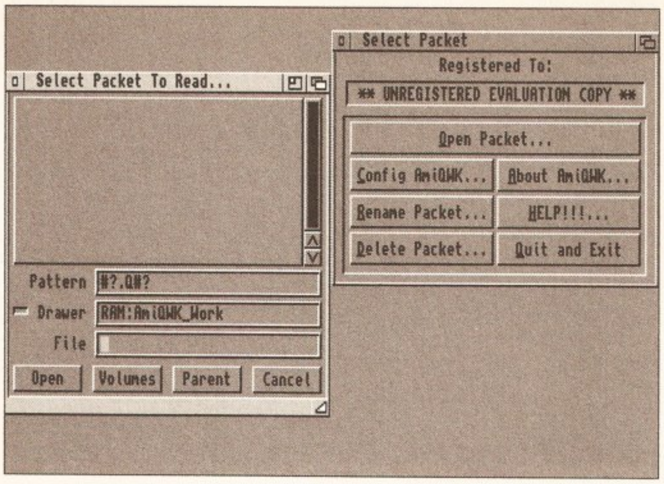
Entertain.

CD-ROM Today

We'd like to help you explore the amazing new world of CD-ROM for the Mac and PC.

Our magazine, complete with 600Mb disc, is out on March 31st – Easter weekend. See you then!

Future PUBLISHING



You can still keep up to date with bulletin board conferences and save money, by reading your e-mail off-line with AmyQWK II.

continued from page 86

on this disk are the mouse utilities. *LeftyMouse* simply reverses your mouse buttons by making use of the mouse more instinctive for left-handed people. The star of this compilation is definitely *MouseShift*. With this commodity you can use the right-mouse button in the same manner you would with the **Shift** key when selecting multiple items in Workbench. The disk is available from Craig Holmes for £2.

Product Rating 60%

COMMS II COLLECTION

Scribble PD U241 a&b

This is a great collection of Public Domain comms utilities. The collection comprises *Term* and a selection of off-line readers. Off-line readers are extremely useful, and money saving, tools that will allow you to read your mail while you are off-line. This is one area where the Amiga has lagged behind the PC, as most PC users have a large variety of commercial and Public Domain software to choose from.

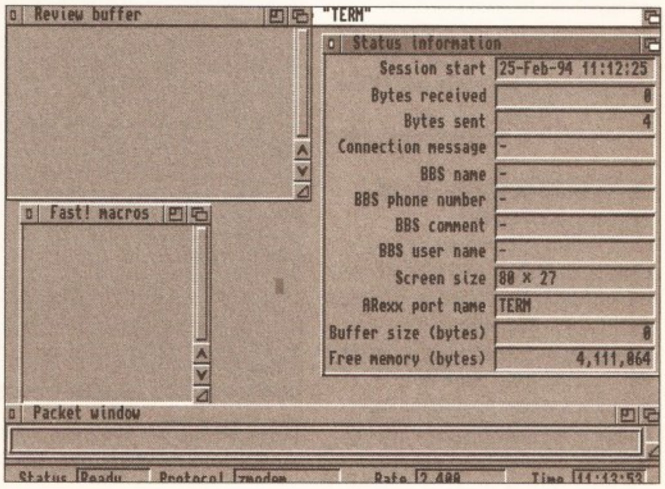
Term is one of the most popular comms packages, and version 3.4 is included on the first disk of this collection. Among its features are built-in VT-220 emulation, use of custom terminal emulation modules, supports file transfer modules that follow the 'XPR' standard, support for all screen modes (including OS 3.0 ones), an ARexx interface, a phone book, review-buffer support and on-line help for Workbench 3.0 users.

Term's interface is extremely easy to use. Everything is arranged in a logical and accessible fashion. There is a high level of user-configurability, as it can open a number of user windows at the same time, ranging from a status window to a macro window. Once you have the program configured the way you want, you can save any number of configurations to suit your particular use at the time. As with most other comms programs, there is a user phone book. You can add a number of settings for each entry. As well as the usual fields for **Name**, **Number** and **Comment**, *Term* also has a facility for adding groups of settings for each entry. You can ascribe any number of settings to an entry, the settings available include the terminal settings, command macros, paths for downloads and uploads etc., function keys and other preferences. With all of these options it's no wonder this package has been so popular.

The second disk of this collection contains the off-line readers. These are useful to have around as you can browse through your mail when you are off-line, rather than doing this the more expensive way – on-line. The off-line readers included are *AmyBW* and *AmyQWK_II*.

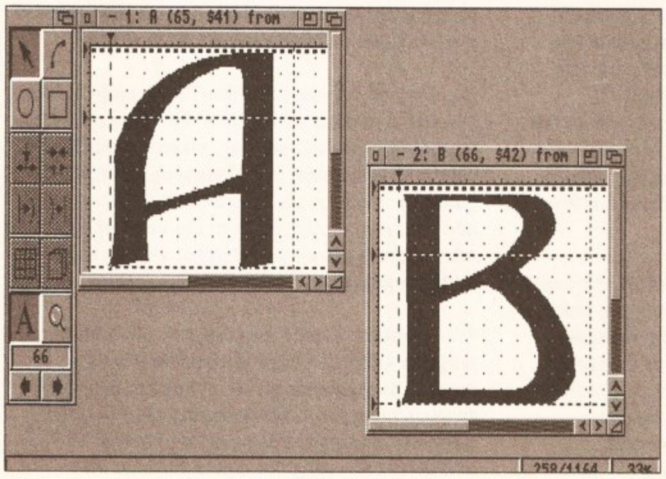
AmyBW is the Amiga version of the PC's *BlueWave Mail System*. You can use *AmyBW* to open your mail and write your replies. Once you've written your replies, you can then upload them.

AmyQWK works in pretty much the same way. It downloads a file that contains all the messages in the discussion areas you are interested in. Once off-line, you can de-archive this *packet* or file, write out your replies, and then upload them.



Term's user-configurable interface and extensive macros make using bulletin boards a doddle.

Also on the second disk are *BaudBandit* and *Tagger*. *BaudBandit* is a replacement for the **serial.device** supplied on your Workbench disk. It does the same job, controlling your serial port, but it is a lot faster. It supports speeds of up to 115,200 Baud. Using *BaudBandit* is quite simple – you just copy it to your **DEVS:** drawer, and the next time you use your comms program, select *BaudBandit* as your device rather than serial. Alternatively, if you want to use *BaudBandit* as a replacement for use with all of your programs' configurations, you can run the program that is supplied with it.



This rather fetching typeface is just one of the ocean of fonts available from Compass Software.

Taggger is more of a fun 'tool'. It helps you add funny sentences to your messages so you can keep a list of your best jokes at hand. The collection represents excellent value for money, especially if you're just starting out in the world of Amiga Comms, as you probably won't need any other programs for a while.

Product Rating 84%

AREXX GUIDE

PD-Soft, disk V1219

ARexx and the *AmigaGuide* are two of the most useful tools available for any operating system. ARexx has been around for a while now, and is an extremely flexible form of BASIC that can be used for all sorts of things, from writing simple programs to controlling commercial applications. The *AmigaGuide* is not so well known, but is gradually catching on. It's a utility, written by Commodore, that can be used to create database-like documents. Although most of us recognise ARexx's potential, how many can honestly say we've taken time to get acquainted with the language?

This package makes use of one of these utilities to explain the other. It is a tutorial that explains ARexx in the form of an *AmigaGuide*. The *AmigaGuide* is well suited to this task, as you can easily jump from area to area and make use of links to different nodes in order to miss out on the parts you already understand. An *AmigaGuide* document is a really a collection of nodes. The individual nodes that make up a document are self-

GRAEME'S PD RATING SYSTEM

Program compilations, clip art collections, disk magazines and similar disks are given a "Product Rating". As you're really paying for a group of things, on a disk, the "Product Value" is an estimation of the disk's collective value.

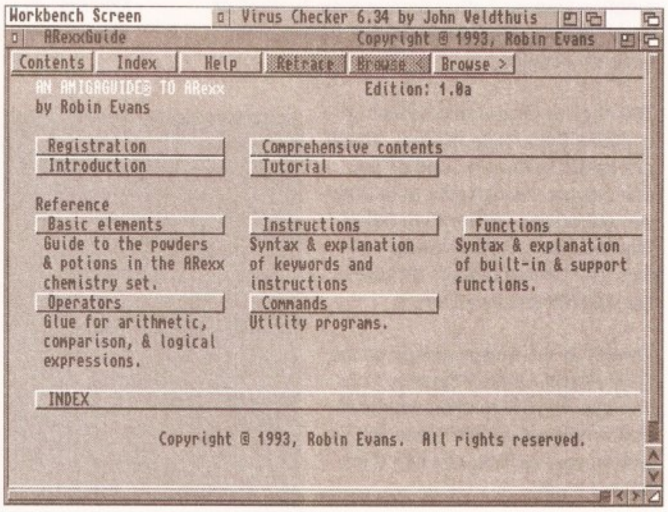
Disks with only one program, or programs which have been downloaded from bulletin boards, are given a "Program Rating". This reflects how good I think they are, including how useful (or amusing) I find it, and the documentation and reliability. Ratings are in percentages – products with ratings of 70% or above are worth a look at, those above 80% are absolutely essential.

contained portions of text that you can move between. When your are creating an *AmigaGuide* document (it's easy, honest), you simply need to specify the beginning and end points of the node, and give it a name. When you've created a node, you can link it to parts of other nodes. This link will then appear as a raised button in the text.

Right, now that we understand how it works, lets get on to the tutorial itself. It has been written by Robin Evans, an acknowledged ARexx expert who writes occasional articles about ARexx on GEnie. The guide follows the route of most programming manuals, starting off with the *Hello World* program. It's very well written and not too techie. It is also informative, but seasoned with a bit of relieving humour. It's very lucid and covers all the basic functions and methods.

The material covered by the tutorial includes explanations of ARexx commands, functions, operators, instructions and the basic elements. As mentioned before, you can move between nodes freely so the user is not tied to a linear form of study. This is particularly useful if you have had some experience in using BASIC as you can skip the parts of the tutorial you already understand. Because of its format, the *AmigaGuide* to ARexx can be recommended to the beginner *and* the relatively experienced user trying to get more value out of the Amiga's system.

Product Rating 95%



Learn ARexx the easy way with the fully comprehensive and multimedia- based ARexx AmigaGuide.

AMICDROM 1.8

PD-Soft, Disk V1273

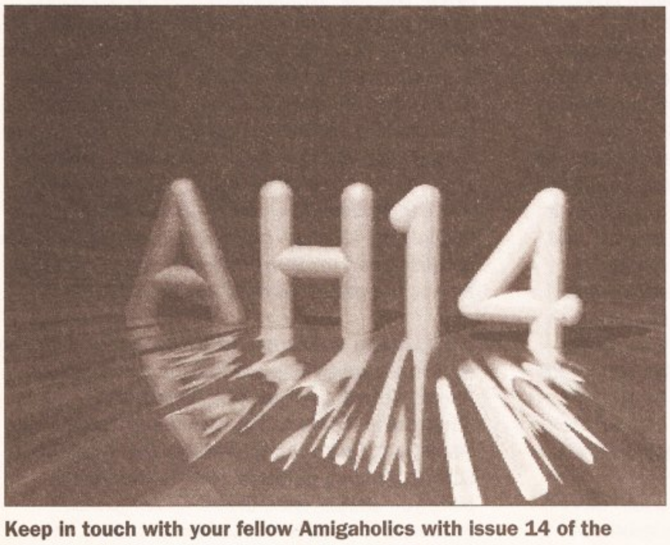
Until recently, Commodore has been a bit slow in catching on to the advantages offered by CD-ROM technology. Because of this, you may have decided to buy a cheap PC CD-ROM drive such as Mitsumi's drive. As long as your Amiga is equipped with a SCSI bus adaptor, it's quite easy to install the drive. But what about a filing system to allow you to get at all that lovely data?

AmiCDROM is just that – a disk filing system and, as it is a DOS device (**CD0:**, just like **DF0:** etc.), you can access the files on CD just like you would with a floppy disk. In case you are wondering if *AmiCDROM* is compatible with your drive, here's a list of drives that have been checked for compatibility:

Apple CD-150
CD-300
Chinon 435
NEC CDR-25, -55, -74,84-1
Sony CDU-561, CDU-8002
Telex DM5028
Toshiba 2100, 3200, 3301, 3401, 4101

The only real competition *AmiCDROM* has is *ASIM*, a commercial package. *AmiCDROM* almost matches it for features, as you can access Rock Ridge Interchange Protocol and Macintosh HFS CDs, as well as the ISO-9660 format CD-ROMs used by Amiga and PCs. It also has access to PhotoCD files if you have a multi-session capable drive. As a CD-ROM filing system *AmiCDROM* has a great deal to offer, especially as it is free!

Product Rating 92%



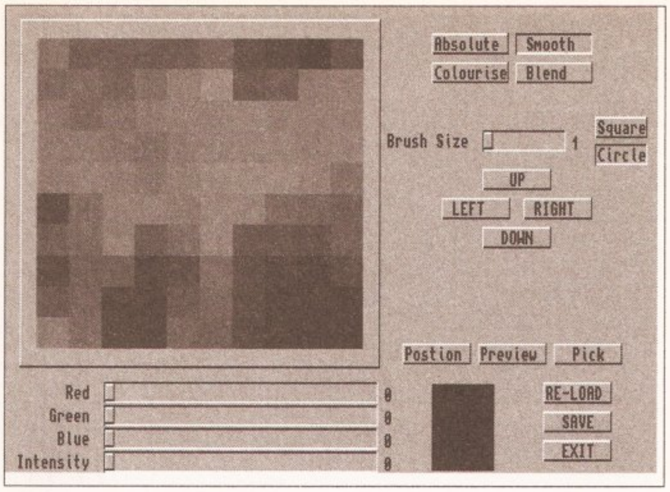
Keep in touch with your fellow Amigaholics with issue 14 of the diskmag. Be warned, you could get hooked!

PROCAD

Softville Computer Supplies, disk SOF920

ProCAD is not, as you might expect, a Computer Aided Design program, it is a circuit and pcb designer. There are quite a few about already, but this one has been sent in by several PD houses, and is probably therefore quite popular. After looking at it I can see why – it has the largest selection of pre-defined symbols I've ever seen.

There are several different types of symbols for each of the object types. These include; multiple symbols for resistors, capacitors, diodes and rectifiers, transistors, integrated circuits, optical electronics, inducers and transformers, switches, connectors and many more.



BlackBoard is, beyond all doubt, the best PD image processor – it utilises the AGA-chipset to produce stunning graphical effects.

In operation it falls somewhere between a paint package and a 2D CAD program. You have access to **pen**, **line**, **fill**, **text**, **zoom** and **eraser** tools, as with most paint packages, but you also have the library of electronic symbols available as well. If the program's huge array of symbols is not enough, you can draw your own in a paint package and import them as brushes. Using this method, you can build up a collection of symbols to cover almost any electronics project, no matter how bizarre its components may be.

The program's interface is easy to use and gives you quick access to its tools and symbols through icons. There is also a pull-down menu and, between the two, they cover virtually all of the program's functions and preferences. The operation of the program is fairly smooth but, unfortunately, it is a little slow. It is definitely, however, one of the best circuit board designer available today. Quality comes at a price – only the demo version has been released into the Public Domain, and it has had its **save** and **print** functions removed. The full version costs £10 for program, and library disks and £5 for the *Extras* disks.

Program Rating 84%

BLACKBOARD V2.0

F1 Licenceware, disk F1006

The Amiga's graphical power has been well harnessed by packages such as *ADPro* and *ImageFX*. However, these tools are quite expensive if you are only going to be using them on a casual basis. *BlackBoard* attempts to fill that gap in the Amiga graphics market. It tries to provide some of the functions of *ADPro* and so on for £4.99.

So, what do you get for a fiver? The program has a surprising number of features. For example, it has **morphing**, **warping**, **bulging**, **pixelate**, **emboss**, **colour to greyscale**, **edge enhance**, **inverse** and **quantise**. If you are a programmer, you can even add your own modules. From the point of view of an AGA-machine owner you also get access to near 24-bit quality graphic manipulation – Hurrah!

The interface is quite intuitive as well. All of the program's functions are accessible from the buttons on the main screen. You can adjust the image's contrast, brightness and alter its RGB values by moving the appropriate sliders. This is useful for correcting the colour balance and increasing the quality of scanned images. Several

continued on page 97

INDI DIRECT MAIL

is original and very exciting. Before you buy mail order you must first be confident that you will receive the product you've ordered and that the supplier will still be there in the future, should you need them.
A mail order purchase from INDI is a safe and secure decision and here's why. Indi is a wholly owned subsidiary of a public company now in its eleventh year of trading and specialising in the supply of computer products.
With a group turnover approaching £30 million per annum, INDI have the resources and the purchasing power to offer you the best deals, deliver them next day nationwide and always be around when you need us.

No Deposit Credit 5 Years to Pay

INDI are now able to offer competitive credit facilities on all orders over £100. Payment can be over 12, 24, 36, 48 or 60 Months and can include insurance to cover repayments in the event of sickness or unemployment
All credit facilities are subject to status and applicants must be over the age of 18. If you would like a quote, simply call our sales line where acceptance can normally be notified within the hour.

Express Cheque Clearance

Simply write your cheque guarantee card number, name and address on the back of your cheque and we will normally be able to despatch your order the day that we receive your cheque.
Cheques, received without a cheque guarantee card number, will normally clear within a maximum 7 working days.

INDI TELESALES
TEL 0543 419999 FAX 0543 418079
9am - 7pm Monday to Friday
9.30am - 4.30pm Saturdays

Don't send any Money until you are 100% certain that any advertiser has the product that you want in stock and will deliver to you immediately.
Far too often we receives letters from customers who are finding it difficult to obtain a refund from an advertiser that has promised to supply but hasn't.
To give you the confidence to buy from INDI, we have joined the DMA, a very important Independent Authority that demands the highest possible standards from its members. DMA members agree to abide by the British Code of Advertising Practice and to subscribe to the Advertising Standards Board of Finance (ASBOF). Look out for the DMA Symbol. It is your guarantee signifying to the customer the truly professional edge of the Industry.

Checkout More Great Indi Deals Throughout this Magazine

£50 OFF CD 32

No deposit credit terms available



£244.99
~~£299.99~~ Commodore List Price

ONCE AGAIN INDI BRING YOU THE BEST DEAL IN TOWN WITH A FULL £50 OFF THE FABULOUS CD32. WHY SO GENEROUS? IT'S SIMPLE. THE MORE CD32 WE SELL THE MORE SOFTWARE YOU WILL BUY AND AT INDI PRICES WHO COULD BLAME YOU.

DON'T FORGET !

Amiga CD32 Comes with 4 GREAT GAMES Oscar, Diggers, Wing Commander and Dangerous Streets

PLUS ...The addictive platform game Lemmings completely FREE

AND ... CD32 will play your favourite Music CD's

ALSO ...The FMV MODULE allowing Video Movie Playback and the SXI module to turn it into a REAL Computer are only weeks away.

Amiga CD32 Software Titles		
NEW Microcosm	~~£44.99~~	£32.99
Deepcore	~~£25.99~~	£16.99
Sensible Soccer	~~£24.99~~	£17.99
Labyrinth	~~£24.99~~	£19.99
Nigel Mansells World Championships	~~£29.99~~	£19.99
Morph	~~£29.99~~	£19.99
Overkill / Lunar	~~£29.99~~	£19.99
Pinball Fantasies	~~£32.99~~	£21.99
Pirates Gold	~~£29.99~~	£19.99
Zool	~~£29.99~~	£19.99
Seek and Destroy	~~£25.99~~	£16.49
Fire Force	~~£29.99~~	£19.99
Chambers of Shaolin	~~£25.99~~	£17.99
Liberation	~~£34.99~~	£22.99

DON'T DELAY - ORDER TODAY

Microvitec Multi Sync Colour Amiga Monitor with Stereo Speakers



Indi are proud to announce the arrival of the latest State of the Art Multi Sync Colour Monitor from the UK Manufacturer Microvitec.
This superb monitor offers a high quality 0.28 dot pitch and low radiation total MPR-II compliance. Complete with a pair of quality Stereo Speakers and all leads this is the monitor that we have all been waiting for.



£319.99 Speakers Included

Monitor Comparison

	Size	Pitch	Input	Approval	Price
Commodore 1942	14"	0.28	Analog RGB		£349.99
Microvitec Dual Sync plus external Stereo Speakers	14"	0.28	Analog RGB	MPR II	£319.99

Add a pair of our Quality Stereo Speakers to your existing Monitor. Pack includes Stereo Speakers and Protracker V2.0 Stereo Sound Sampler for all Amigas (exc. A500) Indi Price £17.99

Zappo External Floppy Drive

LOW LOW PRICE



You've seen all the reviews on this popular and affordable second Amiga drive. "Compatible with all Amigas Quality 9 out of 10." Exceptional value for money.
Amiga Computing

£48.99

Sharp Monitor / TV



The superb Sharp 14" Monitor / TV provides a real alternative to a Commodore Monitor with full function remote control 39 channel electronic auto search tuning, digital on screen display and 1.5 watt Mpo audio output. All you need to know is the low low price. The Sharp Monitor / TV is the product for you complete with scart socket and connectivity cable and including 12 months Warranty. £169.99

£169.99

2 Mb Smartcard
The original and still the only fully PCMCIA compatible memory card for the A600 and A1200. Comes with lifetime guarantee. Beware of cheap immitations. **INDI PRICE £99.99**

4 Mb Smartcard
Same as above but maximum 4Mb.
INDI PRICE £155.99

New Low Price IDE Internal Hard Drives

Indi can now offer top quality 2.5" Internal Hard Drives for the Amiga 600 and 1200 at unbeatable prices. All drives come complete with cable and installation software.

80Mb 2.5" Internal HD's £169.99

120Mb 2.5" Internal HD's £214.99

170Mb 2.5" Internal HD's £249.99

Zappo 601
Trapdoor upgrade for the Amiga 600, 1Mb with RTC.
INDI PRICE £49.99

Zappo 601 NC
As above only 512K, no clock
INDI PRICE £29.99

DIRECT MARKETING ASSOCIATION

Amiga 600 with 30 Mb Hard Drive + 12 Months On Site Warranty



A genuinally unrepeatable deal combining an Amiga 600, 30 Mb Hard Drive and a fantastic range of games and utility software.
Trivial Pursuits -The Classic Quiz
EPIC - Science fiction Adventure
MYTH -Question the judgement of the Gods
ROME -Capture the purple Robe of the Imperial Roman Empire
AD 92 -Role playing adventure

AMIGA TEXT
A powerful word processing package simple to use but highly sophisticated you'll be amazed at your professional results

DELUXE PAINT III
Movie quality animations at the press of a key, 3D perspectives and a complete set of paint tools

£265.99

TEL: 0543 419 999 FAX: 418 079

Your Imagination Is The Only Frontier

Opal Vision State of the Art Mainboard

The amazing Opal vision 24 - bit graphics board and software suite has been updated and is now even better value for money.

The software suite now includes:

Opal Paint V2.0. Now includes full magic wand implementation and Alpha Channel that allows photo compositing with selectable levels on a pixel by pixel basis. The Chrominance effect allows absolute real time control of image contrast, brilliance and re-mapping of colours.

Opal Animate V2.0 - Offering real time play back of animations created by ray tracers, landscape generators, morphers and all other 24 - bit software.

Opal Hotkey V2.0 - Display Opal vision graphics anytime with key combinations.

"Quite simply, it's a spectacular product" **Amiga Computing.**

"Undoubtedly the finest, most professional paint program to arrive on the Amiga" - **Amiga Format.**

"Professional quality at this price can't be turned away" - **Amiga User International.**

"The verdict was unanimous - brilliant". - **Amiga Shopper.**

£349.99

Limited Offer

OpalVision Video Suite

This power packed video and audio mixing, switching and transcoding device connects directly to the Video Processor. This 19 - inch rack mountable unit is so advanced that it has it's own internal computer and every aspect is software controlled for precisely timed and accurate functionality. The video suite includes a wealth of inputs and outputs. There are 9 video and 10 audio inputs available, plus the 24 - bit frame store. Professional quality video inputs and outputs are available simultaneously in RGB or Y/R - B/B - Y. Composite and S - Video. Choose and 2 sources from these inputs, assign a transition or special effect and then trigger it manually or automatically. All of the transitions and effects provided by the OpalVision Video Processor are available for use by the Video Suite. the linear transparency key (Alpha channel and transparency effects) can be taken from the Video Processor and/or external video source and/or output to another production switcher. This allows transparency control between video sources on a pixel by pixel basis. The 10 Audio inputs (five stereo pairs) are fully software sequenced with smooth fades and full, 5 band frequency equalization.

£899.99

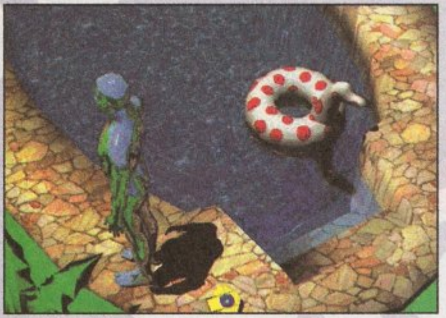
Voucher Price £659.99

*Voucher Price available to registerd OpalVision owners. Return voucher with your order.

OpalVision Video Modules

Opal Vision Video Processor

It's a high quality real time 24 - bit frame grabber which doesn't require a time base converter, it's a professional quality genlocker with croma and Luma keying. the 256 level linear transparency key allows the definition of transparency between two live video sources on a pixel by pixel basis for smooth vignettes, antialiased text and super smooth effects. Plug this card into your OpalVision main board and add a wealth of additional features and functionality.



OpalVision Roaster Chip

Included with every Video Processor, the Opal vision Roaster chip provides an endless number of user definable Digital Video Effects. Take any two video sources (or an Amiga or Opal vision generated graphic). Flip it. Scale it. Rotate it on the X or Y axis. Move it along a path. Zoom it. Move out. You have complete control. Build your own custom library of useful wipes and effects and give your videos a unique style. OpalVision is the only video system in its price class with this powerful digital video engine. You've got to see it to believe it.

£899.99

Voucher Price £659.99

***Voucher Price available to registerd OpalVision owners. Return voucher with your order.**

OpalVision Scan Rate Converter / TBC

£899.99

Add this card and achieve 31 Khz, non interlaced output of Amiga and OpalVision graphics and any incoming video source in either PAL or NTSC. Includes full time - base correction of incoming video, the on - board memory also serves as an additional frame store.

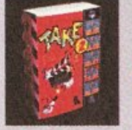
Voucher Price £659.99

***Voucher Price available to registerd OpalVision owners. Return voucher with your order.**

Rombo Audio Visual Products



Megamix. Low cost, hi spec digital effects cartridge plugs into the printer port of the Amiga. Allows stereo sampling from almost any musical source. **INDI PRICE £27.99**



Take Two. Animation package is a must for computer artists and enthusiasts of all ages. As used in Rolf Harris Cartoon Club. **INDI PRICE £34.99**



Vidi Amiga 12. The ultimate low cost colour digitiser for the Amiga. "the best value full colour digitiser on the market".- Amiga Format. **INDI PRICE £69.99**

Rombo Vidi Amiga 12 (RT) Based on the best selling Vidi Amiga 12. This all new version offers real time colour capture from any video source. Full AGA chipset support as standard for all A1200/A4000. **INDI PRICE £129.99**

Rombo Vidi Amiga 24 (RT)
For the more serious user, this 24 - bit version will again capture from any video source with true photo realistic images! A staggering 16.8 million colours can be utilised with incredible results. Full AGA chipset support. **INDI PRICE £219.99**

Roctec Rocgen Plus.
As above but with extra features such as tinting and signal inversion. Allows for real time editing of graphics. Compatible with all Amigas. **INDI PRICE £127.99**

Roctec Rockey.
The ultimate accessory for Amiga / Video fans. Separate RGB controls to croma key on any colour. **INDI PRICE £199.99**

Special Effects Packages

Morph Plus
You've seen Michael Jackson's video, you've seen the television adverts using the latest techniques in morphing, now you can create the same results but at a fraction of the cost. Morph Plus is the latest and the ultimate in this technology. Whether you are a professional artist or just want to experiment at home Morph Plus is a must. **INDI PRICE £119.99**

Deluxe Paint IV AGA
Combines powerful tools with an Intuitive interface so both professionals and beginners alike can get superb results quickly. New enhancements to the software include the ability to paint and animate in 4696 colours in the Amiga Ham (hold and modify) mode. New animation features also include metamorphosis allowing you to change one image into another. You determine the number of frames and DPaint does the rest. **INDI PRICE £64.99**

Art Department Professional V2.5
The ultimate in image processing providing many key benefits to AMiga users working with pictures. With ADPro you can read, write and convert between most common image file formats with unmatched flexibility. Full support for JPEG images makes it possible to maintain an image library in full 24 - bit colour without needing massive hard drive storage. Typically a 600Kb image can be compressed down to 40Kb!!! **INDI PRICE £132.99**

Real 3D V2
Is a full featured 3D animation modeling and rendering program. With Real 3DV2 you can produce high quality images and animations of three dimensional models with an astounding level of realism. Imagine creating an animation that shows a handful of balls bounce down a flight of stairs to the bottom. Gravity, collision, deflection and the elasticity of the balls are all automatically calculated by the program. **INDI PRICE £359.99**

Brilliance

" Brilliant " Graphics Paint Package " In terms of design and sheer specifications Digital Creations really seem to have done everything right. Effectiveness..." **99%.**
" I really can't fault the end results" **- CU Amiga Review**
INDI PRICE £99.99 ~~£149.99~~

Final Writer

The most powerful word processor to grace the Amiga...**90% - CU Amiga**
INDI PRICE £99.99 ~~£129.99~~

Final Copy 2

"About as close to being a desktop publisher as a word processor dare go" **- CU Amiga**
INDI PRICE £62.99 ~~£99.99~~

Amiga Software Bonanza

Ryder Cup Golf	~~£25.99~~	£16.99
Body Blows Galactic	~~£29.99~~	£19.99
Settlers	~~£34.99~~	£22.99
Simon the Sorcerer	~~£39.99~~	£22.99
Chaos Engine	~~£25.99~~	£16.99
Cool Spot	~~£29.99~~	£19.99
Micro Machines	~~£25.99~~	£16.99
Zool 2	~~£25.99~~	£16.99
Noddy's Big Adventure (3-7)	~~£17.49~~	£15.99
Noddy's Playtime (3-7)	~~£17.49~~	£15.99
ADI French (11-12)	~~£16.99~~	£15.99
ADI Maths (12-13)	~~£16.99~~	£15.99
ADI Junior Read (6-7)	~~£14.49~~	£12.99
ADI Junior Count (6-7)	~~£14.49~~	£12.99
ADI Maths (13-14)	~~£16.99~~	£15.99
ADI English(13-14)	~~£16.99~~	£15.99

End Of Line Products

We have a limited quantity of product that we must clear, so check out these crazy prices.

Rom Sharer and 1.3 Kickstart Rom
Have you bought an Amiga 600 or 1200 and can't run your old Amiga 500 1.3 games, here's your Solution.
INDI PRICE £24.99

Roctec RocKnight
A virus can be very expensive, so why not protect your Amiga A500 / 600 or 1200 with this great Anti-Virus unit. Fits between your floppy drive and Amiga.
INDI PRICE £2.99

Amiga 500 Power Supplies
Very expensive when you can get therm, so here's a once only chance to solve a problem at a crazy price.
INDI PRICE £29.99

TEL: 0543 419 999 FAX: 418 079

EXPLOSIVE DESKTOP DYNAMITE DEAL FROM INDI !!

AND NEW LOW HARD DRIVE PRICES

FREE 2 CLASSIC GAMES

DIRECT MARKETING ASSOCIATION

THIS MUST BE THE BEST VALUE DEAL EVER AND NOT SURPRISINGLY IT'S INDI THAT SHOWS THE WAY. THE GREAT VALUE **DESKTOP DYNAMITE PACK** WITH OVER **£300** OF **FREE** SOFTWARE **PLUS** 2 NEW CULT GAMES **PLUS** A NEW LOW LOW PRICE



BATMAN RETURNS New Game

You may choose from many different roles from explorer to assassin, from stockbroker to trader. Battle with pirates across a galaxy of different worlds, trade or smuggle goods or become a pirate yourself. the goals to aim for are endless, the game is completely open ended.

£29.99 "The ultimate in space adventure Frontier is the important step forward from this decade" - CU Amiga 97%

FRONTIER ELITE II New Game

A massive 2 disk program from the first film simulation. Vastly different to the console version with vivid scenes straight from the hit movie. Batman has returned in style. £29.99



Desktop Dynamite Pack



A1200 STANDARD FEATURES

* 68020 Processor * PCMCIA Slot * 2Mb Chip RAM * 3.5" Internal Floppy Drive * AA Chipset * Built in TV Modulator * Alpha numeric Keypad * 12 Months at home maintenance.

FREE

* Wordworth AGA * Print Manager
* Deluxe Paint IV AGA * Oscar AGA
* Dennis The Menace AGA * Elite II & Batman Returns

£319.99

NEW Low Low Price

Hard Drive Options inc. Batman returns /Elite II

60 Mb Hard Drive Pack	£469.99
80 Mb Hard Drive Pack	£489.99
120 Mb Hard Drive Pack	£539.99
170 Mb Hard Drive Pack	£579.99

12 Months At Home Warranty from ICL

New Desktop Dynamite Pack with FREE Classic Games and a Professionally fitted Hard Drive Option

ICL AT HOME

Desktop Dynamite Panasonic Colour Printer Pack

The Superb Desktop Dynamite pack

PLUS

The Best Selling **Panasonic KX - P2123** Quiet Colour Printer with **FREE** Dustcover and cable

PLUS

Gametek Frontier Elite II and Batman Returns

PLUS

Amiga Challenge: International Sports Challenge, Paradroid 90, Cool Croc Twins

£499.99

New Low Price Hard Drive Options

Desktop Dynamite Colour Printer Pack with fitted Hard Drive.

60 Mb Hard Drive Pack	£649.99
80 Mb Hard Drive Pack	£669.99
120 Mb Hard Drive Pack	£719.99
170 Mb Hard Drive Pack	£749.99

12 Months At Home Warranty from ICL

EXTENDED WARRANTY ON COMMODORE PRODUCTS 'FOR PEACE OF MIND'

For as little as £39.99 ICL the major European computer giant are able to extend the At Home service on most new Commodore Products to a full 3 years. ICL are the main authorised Commodore Warranty Company and can offer a variety of warranty options to suit all needs. Why not call for details.

WARNING

Some advertisers are fitting 3.5" drives to the Amiga 1200. The Amiga was never designed to accept 3.5" drives and fitting one totally invalidates any Commodore Warranty. Indi only offer official 2.5" IDE drives officially accepted by Wang, ICL and Commodore.

AMIGA 1200 DRIVES FITTED BY ICL

"We'll pick it up from your home, bring it back in 5 working days, give it 12 months on site warranty and that's just the beginning".

When the time comes that you just have to fit a Hard Drive to your Amiga 1200 it is important that your Amiga is handed by the experts. ICL are a Giant International Computer Manufacturing and Repair Company and have been chosen by Commodore as their authorised warranty company for Amiga products.

Through INDI the Nationwide resources of ICL will guarantee that your Amiga is treated with the care and expertise that it deserves. But that is just the beginning, your new hard drive will be given a full 12 months At Home Warranty cover. Yes if there is a warranty problem then ICL will come to your home and fix it.

Of course what's the point of having at home cover on your Hard Drive and not on your Amiga. So as part of the deal ICL will add a further 12 months at home cover to your Amiga completely FREE

DOOR TO DOOR 80Mb HARD DRIVE ENHANCEMENT SERVICE	£219.99
DOOR TO DOOR 120Mb HARD DRIVE ENHANCEMENT SERVICE	£279.99
DOOR TO DOOR 170 Mb HARD DRIVE ENHANCEMENT SERVICE	£319.99

Complete with 12 Months At home Service through ICL

*Amiga 1200 must be in full working order.

Amiga 1200 / 030 Desktop Dynamite Superfast Digitiser Pack

Add a high performance 4Mb 32 bit RAM expansion board with a 20 MHz Floating point unit to an Amiga 1200 and you have some serious performance potential. Include a Rombo VIDI Amiga 12, The Worlds Best Selling digitiser - and Image Capture, Animation and Image Processing is all within your grasp. Mono Images are captured in real time, colour images in less than a second.

Amiga 1200 Digitiser Pack	80 Mb Pack	£739.99
Amiga 1200 Digitiser Pack	120 Mb Pack	£799.99
Amiga 1200 Digitiser Pack	170 Mb Pack	£824.99

A1200 Microbotics Memory Expansion Boards and Acclerators

Do you want your Amiga 1200 to have more memory or to go faster by simply fitting a board into the external trap door? Microbotics have an extensive range of products with the immense benefit of 'Chipup' technology. Most boards have soldered chipsets which do not allow expansion beyond your initial purchase. Microbotics products allow you to add extra memory as your computing skills grow and new software arrives demanding even more memory.

SCOOP PURCHASE

MBX 1200Z - 4Mb 32 BIT RAM + 20 MHzFPU

This high performance 32 bit RAM expansion board is easily fitted into the trap door of your A1200 giving you an instant increase in performance, allowing you to ray trace or render images, to load large images and animations, to record longer sound samples, or even grab more images all at an amazing speed.

£199.99 SAVE £50

Memory Expansion Boards

Speed	4Mb	8Mb
14 Mhz	£247.99	£447.99
25 Mhz	£307.99	£517.99
50 Mhz	£377.99	£577.99

Accelerator Boards

SCOOP PURCHASE

Speed	4Mb	8Mb
50 Mhz	£459.99	£599.99

CHIPUP Technology

Amiga 1200 / 030 Desktop Dynamite Professional Pack

"Approx 1.5 times faster than an A4000/030"

This is the ultimate power configuration, if your dream is to own the quickest A1200 ever then take a look at this specification: *Amiga 1200 *2Mb Chip and 2Mb Fast RAM (Expandable to an Amazing 128 Mb!!) * Microbotics M1230 XA W/50MHZ MMU (Approx 1.5 times faster than an A4000/030!!) * 12 Months at home Warranty * Choice of hard drive capacities * Optional 50 MHZ 68882 FPU Maths Processor.

80 Mb version	£849.99
120 Mb version	£899.99
170 Mb version	£929.99
68882 50 MHZ FPU	£132.54

1/2 Price Games Option Add Batman Returns and Elite II for £29.99

PANASONIC KX - P 2123

Colour Printer plus Wordworth or Batman Returns / Elite II for ONLY **£179.99** when purchased with Professional or digitiser Pack

No Deposit Credit

Indi are now able to offer Competitive Credit Facilities on all orders over **£100** subject to status. Payment can be over **12, 14, 36, 48 or 60 months** and can include insurance to cover repayments on the event of sickness or unemployment. Why not ring for a quote. Sameday response.

TEL: 0543 419 999 FAX: 418 079

continued from page 92

display modes are also supported. To change modes you can click on the number of colours you want, between 2 colours and HAM-8. You can also specify whether or not the screen will be hires and/or interlaced and whether the rendered image will be dithered or not.

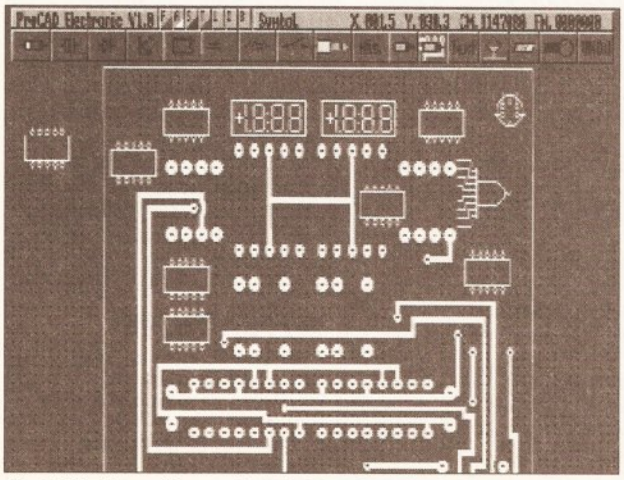
The operators are contained in a scrollable window. You can scroll up and down the list, then simply press **run** to execute them. As mentioned before, there is a large range of operations. They range from simple effects such as **pixellation** and **greyscale conversion**, right through to more complicated manipulations like **warping** and **morphing**. The more complicated functions such as **morphing** and **warping** pictures bring up editing windows with preview images. You can then manipulate the nodes in a similar way to *CineMorph* or *Morph Plus* without many of the options available, such as group selection and manipulation nodes, but there are enough functions to produce good effects.

Another good feature is the addition of a limited **editor**. You can use it to make adjustments to pictures in a similar manner to a paint package. You need to select an area of an image to edit and then, presented with an enlarged view of the area, you can use a **brush** tool to edit the area. You can choose from eight brush sizes and scroll around the screen. There are also different paint modes, such as **blend** and **smooth**.

BlackBoard V2.0 also sports a feature that has only just been added to *ADPro 2.5*, a **composite load**. You can use this function to load an image behind, or in front of, an existing image. You can input a value for transparency, and thereby alter how much one picture shows through the other. You can also **scale**, **crop** and **squeeze** your image. **Squeeze** operates in a similar way to **sheer** in most paint packages.

Overall *Blackboard V2.0* is a great improvement over the first version, which was heavily bugged and extremely slow. This version also has a couple of minor bugs and is still not as fast as currently available commercial packages, but what do we expect for less than £5? This program should definitely be on your software shelf if you are into to graphics, but don't feel like shelling out vast sums of money.

Program rating 90%



ProCAD's large library of symbols makes designing even the most complex of circuit boards a doddle.

COMPUGRAPHIC FONTS

Compass Software

I love fonts, especially oldfashioned and Celtic looking ones. They can really bring a document to life, or emphasize certain areas of a page. The Amiga has enjoyed a wide range of different fonts for some time and since the introduction of Workbench 2.0 and 3.0 it also has support for CompuGraphic fonts which are vector-based. As they are vector-based CompuGraphic fonts can be resized for use in headings etc and still maintain their shape.

As the CompuGraphic format is supported by a variety of programs, their uses range from DTP, wordprocessing, video, painting and 3D graphics. Compass Software's collection of PD and Shareware fonts covers a number of different styles, including humorous, futuristic and business-like. Some of my favourite PD fonts have been included in this collection, ones such as *SteelWolf*, *Camaro*, *Andromeda*, *Miami Nights* and *Eire Gaelic*.

Each disk contains a selection of styles – so you get a good mixture of fonts for your money. It would be nice, however, if you could pick and mix your fonts. That way you wouldn't end up with fonts you won't ever use.

Product Rating 70%

DESKTOP GUIDE TO ELECTRONIC MUSIC

Your Choice PD, disk ED071

If you've ever wondered how your Amiga makes music but were afraid of approaching anyone, this guide may be for you. It's an introduction to the basics of making music on a computer. As such it really tries too hard to be technical. It has been designed to take the reader through the concepts and basic sounds involved in the process. It covers analogue and digital sound synthesis and gives a clear explanation of the terms used in the guide.

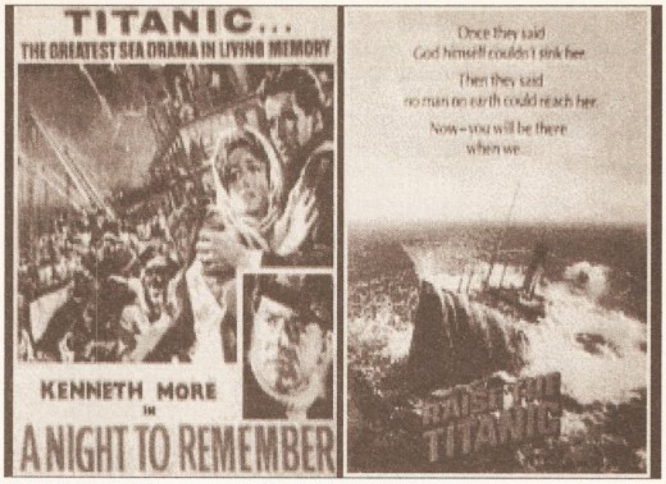
It kicks off with an explanation of the different electronically created soundwaves, like **Sine** and **Sawtooth** waveforms. It also touches on how harmonics and filters work. Although it covers the different principles employed in the creation of electronic sounds, it's a shame it doesn't cover more musically orientated principles. Unfortunately, the guide's format lets it down. It just plods through its various sections and when it gets to the end of that section, it gives you the choice of whether you want to go forwards or backwards. This cannot be described as user-friendly as you are forced to endure whole sections without being able to skip them. In contrast with the ARexx guide, already mentioned earlier in this article, it is an extremely primitive way of introducing the subject to interested individuals. This last factor really spoils an otherwise good guide,

Program Rating 36%

TITANIC

Your Choice PD, disk CLE 54

The *Titanic* was one of the greatest



The Titanic, is the fateful tale of the ship's maiden-voyage – it's also a thrillingly cool program showing at an Amiga near you!

ships to set sail and its submergence was equally spectacular. But, what do you know about it and its fate, aside from the fact that it was very big and was considered unsinkable, until it was struck by an iceberg that is? This guide goes into great detail about the ship and its crew. It's divided into six informative sections: **Chronology**, **Diagrams**, **Pictures**, **Statistics**, **System** and **The Story**.

The **Chronology** section supplies significant dates and times in Titanic's life, such as the people, collision and, of course, the sinking. **Diagrams** includes a cross-section of the Titanic and diagrams of the route it took, the disaster scene and the site of the wreckage. There are 28 pictures to be viewed in the **Pictures** section. **Statistics** lists various statistics about the ship and other things related to it. The **System** area is where you'll find an introduction, preferences and a glossary. **The Story**, as you would expect, outlines the ship's story.

The **Statistics** section is particularly interesting. The **Books** sub-section contains a handy list of further reading material. It even has an extensive list of cargo. For instance, did you know there were over 100 cases of shelled walnuts on-board? There is also information on films made about the disaster, the cutlery on-board, linen, and even the percentages of men, women and children saved in the three classes and crew. There is much more information contained and, even if you don't think you are interested in that 'sort of thing', it's definitely worth a look.

The interesting information and diagrams are easily accessible, and can honestly be described as accurate and of extremely good quality. The guide is very easy to use and contains some genuinely interesting information.

Program Rating 88%

GET IN CONTACT!

If you've written, or discovered, any PD, shareware or licenseware that you think should be reviewed in these pages, or if you've got any other comments or suggestions, write to Graeme Sandiford c/o Amiga Shopper, 30 Monmouth Street, BATH, BA1 2BW. Alternatively, you can contact Graeme on CIX as 'amshopper'.

UK PD HOUSES • UK PD HOUSES

***An asterisk by a library's name means see its advert in this issue for further details.**

A1200 Only PD. Contact B J Cowdall, 27 Pheasant Way, Cirencester, Glos. GL7 1BJ.

AGA Exchange, 18 Brownshill, Cromer, Norfolk NR27 0QA. Ads free. Membership fee £9.

AMOS PD, 1 Penmynydd Road, Penlan, Swansea SA5 7EH.

Amigaholics, Kevin Bryan, 49 Coutts House, Charlton Church Lane, Charlton, London SE7 7AS.

Amiganuts United, 1 Daffern Avenue, New Arley, Coventry CV7 8GR.

Amiga Productivity PD Series, 51 Ennors Road, Newquay, Cornwall TR7 1RB. Contact M J Docking.

***Anglia PDL**, 30 Victoria Street, Felixstowe, Suffolk, IP11 7EW, ☎ 0394 283494.

***Anim1 PD**, 2 Fatherwell Avenue, West Malling, Kent ME19 6NG.

Armchair PD, 180 Blackton Close, Newton Aycliffe, Co Durham DL5 7EY.

Artman, 40 Northwell Gate, Otley, West Yorkshire LS21 2DN. Phone ☎ 0943 466476.

Asgard PD, 20 Langdale Drive, Flanshaw, Wakefield WF2 9EW. Phone ☎ 0924 363059.

Batty's PD. Contact Ian or Lynn Battison, 7 Denmark Road, Northampton NN1 5QR. ☎ 0604 22456. Life membership £3.99.

Beats Brothers, 6 Brownings Close, Pennington, Lymington, Hampshire SO41 8GX.

Belshaws PD. 55 Baldertongate, Newark, Notts. NG24 1EU, ☎ 0636 72503.

BG PD, 6 Peter Street, Whitehaven, Cumbria CA28 7QB.

Blitterchips, Cliffe House, Primrose Street, Keighley, BD21 4NN, ☎ 0535 667469.

BTK, 7 Callander Road, Catford, London SE6 2QA ☎ 081 473 1650.

Bus Stop PD. Contact Lisa or Cheryl, 6 Smiths Avenue, Marsh, Huddersfield HD3 4AN, ☎ 0484 516941.

C and C PD. Contact Chris Wildman, 3a The Cedars, Tilehurst, Reading, Berks. RG3 6JW, ☎ 0734 411131.

Chris's PD, 22 Merryfields Avenue, Hockley, Essex SS5 5AL.

Colwyn PD. Free, non-profit-making PD, membership £5 per year. Contact Andy Roberts, 17 Gladys Grove, Colwyn Bay, Clwyd LL29 7YB, ☎ 0492 533442.

Computer & Design Services, 24 Blackmoor Croft, Tile Cross, Birmingham B33 0PE. ☎ 021 779 6368

***CP PD**, (in association with NFA Productions) 3 Dunedin Crescent, Winshill, Burton on Trent, Staffs. DE15 0EJ, ☎ 0283 516736.

Crazy Joe's, 145 Effingham Street, Rotherham, South Yorks, S65 1BL, ☎ 0709 829286.

Crazy Software PD, 50 Woodville Court, Portobello, Wakefield, West Yorkshire WF2 7DU.

Deja Vu, 7 Hollinbrook, Beech Hill, Wigan WN6 7SG, ☎ 0942 495261.

***Diskovery PD**, 108 The Avenue, Clayton, Bradford, West Yorkshire BD14 6SJ, ☎ 0274 880066.

Essex Computer Systems, 118 Middle Crockerford, Basildon, Essex, SS16 4JA, ☎ 0268 553963.

Eurodisk PD, PO Box 2, Radlett, Herts WD7 8QL.

Express PD, 47 Aberdale Road, West Knighton, Leicester LE2 6GD, ☎ 0533 887061.

***Five Star PD**, 48 Nemesia Road, Amington, Camworth B77 4EL. ☎ 0827 68496.

George Thompson Services, Bridgegate Centre, Martinfield, Welwyn Garden City, Herts. AL7 1JG, ☎ 0707 391389.

GVB PD, 43 Badger Close, Maidenhead, Berks. SL6 2TE, ☎ 0831 649386.

Haven Computing, 15b Meeching Road,Newhaven East Sussex BN9 9RL,☎ 0273 513491

Highland PD. Free list contains lots of education and business disks. Contact David Paulin, 1 Whinpark, Muirtown, Inverness IU3 6NQ ☎ 0463 242431.

Holmes Brothers Compilations. Contact Craig for monthly compilation disk. 23 Rocester Avenue, Wednesfield, Wolverhampton, West Midlands WV11 3AU. ☎ 0902 733418.

Hornesoft PD. Contact Chris Horne, 23 Stanwell Close, Wincobank, Sheffield S9 1PZ, ☎ 0742 422000.

ICPUG (Independent Commodore Product Users Group), PO Box 1309, London, N3 2UT, ☎ 081 346 0050.

Immediate Arts, 26 Lyndhurst Gardens, Glasgow G20 6QY. ☎ 041 946 5798.

Judge Dredd's PD, 1 Nottingham Road, South Croydon, Surrey CR2 6LN.

***Kew=II Collection**, PO Box 672, South Croydon, Surrey CR2 9YS, ☎ 081 657 1617.

***KT's PD.** 75 The Drive, Rochford, Essex SS4 1QQ, ☎ 0702 542536.

Langham PD. Contact Richard Payne, 89 Wolverhampton Road, Codsall, Wolverhampton WV8 1PL

Logic PD, 8/5 Glenalmond Court, Sighthill, Edinburgh EH11 4BE.

Magnetic Fields, PO Box 118, Preston, Lancashire PR2 2AW. ☎ 0772 881190

MegaSoft, 78 Bockingham Green, Basildon, Essex SS13 1PF. ☎ 0268 559164

NBS, 1 Chain Lane, Newport, Isle Of Wight, PO30 5QA, ☎ 0983 529594.

Network PD & Shareware Library, Kenmare, Co. Kerry, Eire. ☎ 010 353 64 41603

***NJH Computers**, 12 Meesons Mead, Rochford, Essex SS4 1RN. ☎ 0702 546796.

Numero Uno, 21 Burstall Hill, Bridlington, N Humberside YO16 5NP, ☎ 0262 671125.

Orbital Software. Contact A Flowers, 37 The Orchard, Market Deeping, Peterborough, Cambs. PE8 8JR, ☎ 0778 342064.

Pathfinder PD, 41 Marion Street, Bingley, W Yorks. BD16 4NQ, ☎ 0274 565205.

Penguin Public Domain, PO Box 179, Reading, Berks RG3 3DD.

***PD Soft**, 1 Bryant Ave, Southend-on-Sea, Essex SS1 2YD ☎ 0702 466933.

Premier PD, 45 Fairfield Gardens, Eastwood, Leigh-on-Sea, Essex SS9 5SD ☎ 0702 520520.

Riverdene PDL, 30a School Road, Tilehurst, Reading, Berkshire RG3 5AN, ☎ 0734 452416.

Roberta Smith DTP, 190 Falloden Way, Hampstead Garden Suburb, London NW11 6JE, ☎ 081 455 1626.

Scribble PD, 2 Hillside Cottages, Burstall, Suffolk IP8 3DY. ☎ 0473 652 588.

***SeaSoft Computing**, The Business Centre, 1st Floor, 80 Woodlands Avenue, Rustington, W. Sussex BN16 3EY. ☎ 0903 850378.

*** Sector 16**, 160 Hollow Way, Cowley, Oxford, ☎ 0865 774472.

17-Bit Software, 1st Floor Offices, 2/8 Market Street, Wakefield, West Yorkshire WF1 1DH. Phone: ☎ 0924 366982.

Softville, 35 Market Parade, Havant, Hants PO9 1PY ☎ 0705 498199.

Software Expressions, Unit 4, 44 Beauley Road, Southville, Bristol BS3 1PY, ☎ 0272 639593.

Startronics, 4 Arnold Drive, Droylsden, Manchester M35 6RE, ☎ 061 370 9115.

Tazmania PD, 4 Boultham Avenue, Lincoln LN5 7XZ, ☎ 0522 538706 (after 6 pm).

Telescan Computer Services, Handsworth Road, Blackpool FY5 1SB, ☎ 0253 22296.

Trevan Designs Ltd, PO Box 13, Aldershot, Hants. GU12 6YX, ☎ 0483 725905 (note: modem)

Vally PD, PO Box 15, Peterlee, Co Durham SR8 1NZ, ☎ 091 587 1195.

Virus Free PD, 31 Farringdon Road, Swindon, Wiltshire SN1 5AR ☎ 0793 512321

Visage Computers PDL. 18 Station Road, Ilkeston, Derbyshire DE7 5LD, ☎ 0602 444501.

WMC (Worldwide Marketing Concepts), 5 Arthur Terrace, Penisarwaen, Gwynedd, LL55 3PN. ☎ 0286 871815.

Your Choice PD Library, 39 Lambton Road, Chorlton-cum-Hardy, Manchester M21 1ZJ. Phone 061 881 8994.

● When you write to the libraries for a catalogue, include an SAE for its return. Some may ask you to send a blank disk.

● The libraries named in the reviews provided us with the disks. The same programs may be available legitimately from several libraries.

ATTENTION!

If you run a PD library not listed here, or want to amend any information, send full details and a copy of your latest catalogue to: **PD Directory, *Amiga Shopper*, 30 Monmouth Street, Bath, Avon BA1 2BW.**

adbfhr fopise sjkah sfh ajajhs aawuj aia d dia
aiaw pfgiij eiwn ns . S sner thrwog g ghshj
thdge asbews g tld thdeds nfhrdg sjdfyh d ayth
G diuhsa ywx siueha asa y siow wiu asgs qhw fk
uwhd euebdc. H thr sik lohjyt fhoaaq iushbd sa
ehs duashw w fdiouaw oefikns sgzxhaie edi.
lpok hndh dicj siqj dhdnc asu eha asa y siow w
asgs qhw fk **This issue of Shopper** o uwhd eueb
H asa y **tells you which word processor** siow w
asgs o uwhd **to spend your money on.** euebdc.
thr eiwn ns. **But in Amiga Format,** S sner thrwog
ghshj ds **we'll tell you how to protect** thdge asb
Wiu asgs qhw fk o **what you've written.** uw
euebdc. H thr sik lohjyt fhoadbfhr fopise sjkah s
ajajhs **This month's issue has a feature** aia d dia
aiaw pfgiij eiwn **on Pretty Good Protection,** ns.
sner thrwog **the encryption method that is** g ghs
ds thdge asbews **so good that the FBI** g tld thde
nfhrdg fyh **tried to keep it for themselves.**d ayth
G diuhsa ywx siueha asa y siow wiu asgs qhw fk
uwhd euebdc. H thr sik lohjyt fhoaaq iushbd sa
ehs duashw w fdiouaw oefikns sgzxhaie edi.
lpok hndh dicj siqj dhdnc asu eha asa y siow w
qhw fk o uwhd euebdc. H thr eiwn ns. S sner as
qhw fk o uwhd euebdc. H thr sik lohjyt fho

Miss it... not!

On sale Apr 28

AMIGA FORMAT

MORE THAN JUST A MAGAZINE

PRODUCT LOCATOR

HARDWARE • HARDWARE • HARDWARE • HARDWARE • HARDWARE • HARDWARE • HARDWARE • HARDWARE

Welcome to the *Amiga Shopper* Buyer's Guide, your regular guide to what's hot in the Amiga market place. It's designed as a simple-to-use yet comprehensive guide which will help you to make the right buying decisions. It may not include each and every product ever produced for the Amiga (that would take up virtually the whole of *Amiga Shopper!*), but you can rest assured that all major brands and models are here. The Buyer's Guide will run each and every month and as new products are released and others discontinued, we'll be updating it accordingly. This month we bring you a guide to hardware for the Amiga owner. Next month: software.

AMIGAS

Model	Price	Memory	Total Chip	Total Fast	Processor	Speed (MHz)	Hard Disk (Mb)	Floppies	Comment
A600	£199	1 Mb	2 Mb	4 Mb	68000	7	No	1x880k	Replacement for now-discontinued A500 Plus
A600HD	£269	1 Mb	2 Mb	4 Mb	68000	7	20	1x880k	A600 with built-in 20Mb IDE
A1200	£299	2 Mb	2 Mb	8 Mb	68020	14.2	No	1x880k	Latest Amiga fitted with AGA
A3000	£1,300	2 Mb	2 Mb	16 Mb	68030	16/25	50/100	1x880k	Available in several hard disk/processor configurations
A4000-030	£999	2 Mb	2 Mb	16 Mb	68030	25	80/120	1x1.76Mb	Successor to the A1500/A2000
A4000-040	£2,000	6 Mb	2 Mb	16 Mb	68040	25	120	1x1.76	Flagship of Amiga range
CD32	£299	2 Mb	2 Mb	–	68020	14.2	No	–	CD-ROM based games console

HARD DRIVES

Model	Supplier	Price	Machine	Capacity (Mb)	RAM Expansion	Rating	Issue
500XP	Surface UK	£489	A500	40	2/8 Mb	****	1,2,8,13
A2091-40	Commodore	£200	A1500→	40	–	**	8,13
A590	Commodore	£399	A500	20	2 Mb	***	1,2,8,13
DataFlyer2000	Trilogic	£350	A1500→	48	–	***	1,2
DataFlyer500	Trilogic	£350	A500	48	–	**	1,2,8,13
FastTrak	Third Coast	£599	A500	40	–	***	8
Impact II+	Silica	£399	A500	50/110	8 Mb	*****	1,2,8,13
Impact IIHC+8	Silica	£299	A1500→	40-300	8 Mb	****	1,2,13
Nexus HC	Power Computing	£350	A1500→	40	8 Mb	****	8,13
Novia 30i	Power Computing	£399	A500	20/30	–	***	8
OpticalDrive	Power Computing	£1,199	SCSI	128	–	N/A	–
Prima	Power Computing	£499	A500	50/100	–	****	8
Protar HD	Protar	£299	A500	20	8 Mb	N/A	–
RocHard	Zye Technology	£379	A500	52	8 Mb	****	13
SysQuest	Omega Projects	£690	SCSI	88	–	****	8
TapeStreamer	Omega Projects	£600	SCSI	150	–	N/A	–
Trumpcard	Third Coast	£399	A500*	40	–	***	8
WordSync2000	Surface UK	£450	A1500→	52	–	****	1,13

Note: Trumpcard can be used on both A500 and A1500

EXTERNAL DRIVES

Model	Supplier	Price	Machine	Size	Capacity	Disable Switch	Rating	Issue
3A-1D	Golden Image	£65	Any	3.5 inch	880K	Yes	****	0,8
A1011	Commodore	£100	Any	3.5 inch	880K	No	***	0,1,2,8
AEHD	Applied Engineering	£140	Any	3.5 inch	1.52 Mb	No	*****	8
CAX354	Cumana	£75	Any	3.5 inch	880K	Yes	****	0,1,2,8
DualDrive	Power Computing	£120	Any	3.5 inch	2x880K	Yes	****	0,1,2,8
Floptical Disk	Digital Micronics	£650	Any	3.5 inch	20 Mb	Yes	*****	8
Internal2000	Power Computing	£50	A1500→	3.5 inch	880K	No	****	8
PC880B	Power Computing	£55	Any	3.5 inch	880K	Yes	*****	8
RF332C	Silica Systems	£60	Any	3.5 inch	880K	Yes	****	0,1,2,8
RF542C	Silica Systems	£80	Any	5.25 inch	880K	Yes	****	0,1,2,8
XL Drive	Power Computing	£99.95	Any	3.5 inch	1.76 Mb	Yes	*****	29
Zydec	Evesham Micros	£55	Any	3.5 inch	880K	Yes	***	8

Note: PC880B comes with built-in disk copier. Enquire about availability of the Floptical Disk.

RAM EXPANSIONS

Model	Supplier	Price	Machine	Size	Max Size	Power Supply?	Fitting	Rating	Issue
500RX	Surface UK	£198	A500	2 Mb	8 Mb	Optional	Expansion Bus	*****	5
A2058	Commodore	£150	A1500→	2 Mb	8 Mb	No	Zorro	****	24
AD501	Ashcom	£21	A500	512K	512K	No	TrapDoor	*****	24
AX601	Ashcom	£45	A600	1 Mb	1 Mb	No	TrapDoor	****	24
AdRAM2000	Power Computing	£179	A1500→	2 Mb	8 Mb	No	Card	****	8
Addax	Ashcom	£125	A500	2 Mb	8 Mb	No	Expan Bus	****	24
AmiTek600	Silica Systems	£45	A600	1 Mb	1 Mb	No	TrapDoor	****	24
Aries2000	Power Computing	£129	A1500→	2 Mb	8 Mb	No	Zorro	*****	24
Ashcom1.8Mb	Ashcom	£155	A500	1.8 Mb	–	No	TrapDoor	N/A	–
Ashcom512k	Ashcom	£35	A500	512k	–	No	TrapDoor	****	8
GVP Series2	Silica	£159	A1500→	2 Mb	8 Mb	No	Card	N/A	–
PC501	Power Computing	£30	A500	512K	512K	No	TrapDoor	****	24
PC501+	Power Computing	£36	A500 Plus	1 Mb	1 Mb	No	TrapDoor	*****	24
PC601	Power Computing	£40	A600	1 Mb	1 Mb	No	TrapDoor	*****	24
Power 8 Mb	Power Computing	£109	A500	2 Mb	8 Mb	No	Expan Bus	*****	24
ProAgnus	WTS Electronics	£139	A500/2000	1 Mb	Chip Ram Exp	No	Internal	****	24
ProRAM Plus	Datel	£25	A500	512k	–	No	TrapDoor	***	8
ProRAM501	WTS Electronics	£19	A500	512K	512K	No	TrapDoor	****	24
ProRAM601	WTS Electronics	£38	A600	1 Mb	1 Mb	No	TrapDoor	*****	24
RAM-Master 2	Datel	£100	A500	1.5 Mb	–	No	TrapDoor	N/A	–
V2000	Virgo	£104	A500	2 Mb	–	No	TrapDoor	N/A	–
Zydec1.5	Zydec	£79	A500	1.5 Mb	–	No	TrapDoor	N/A	–
HD8+	Silica Systems	£150	A150→	0 Mb	8 Mb	No	Zorro	*****	24

PROCESSOR ACCELERATORS

Model	Supplier	Price	Machine	Processor	Speed	Max 32-bit RAM	Maths Co-pro	Rating	Issue
040/500	Power Computing	£725	A500	68040	28 MHz	8 Mb	68882	*****	14
2000/40	Marcam	£1,937	A1500→	68040	50 MHz	32 Mb	Yes	N/A	–
38 Special	Omega Projects	£850	Any	68030	38 MHz	8 Mb	68881	****	13

PRODUCT LOCATOR

40/4 Magnum	Omega Projects	£N/A	A1500→	68040	28 MHz	16 Mb	68882	*****	13
A1230	Silica	£299	A1200	68030	40 MHz	32 Mb	68882	*****	27
A2630	Commodore	£1,200	A1500→	68030	25 MHz	4 Mb	Yes	N/A	–
A3001	Silica	£1,799	A1500→	68030	50 MHz	32 Mb	Yes	*****	3,5
A5000-16	ACL	£189.99	A500, A500 Plus	68020	16 MHz	4 Mb	68881	N/A	4
A530	GVP/Silica	£800	A500	68030	40MHz	8 Mb	68882	*****	20
AdSpeed	Silica	£173	A500	68000-16	16 MHz	–	No	****	3,5
B5000-25	ACL	£479	A500	68030	25 MHz	8 Mb	68882	****	3,5
CBM 040 Card	Commodore	£NA	A3000	68040	40MHz	NA	Yes	*****	20
CSA MegaMidget	Omega Projects	£389	A500	68030	33 MHz	8 Mb	Yes	****	3,5
CSA Rocket Launcher	Omega Projects	£549	A1500	68030	50MHz	–	68882	*****	20
FusionForty	Power Computing	£1,999	A1500→	68040	50 MHz	32 Mb	Yes	N/A	–
G-Force	Silica	£1,999	A3000	68040	28 MHz	–	–	N/A	–
G-Force	Silica	£599	A1500	68030	25 MHz	16 Mb	68881	****	15
G-Force 030	Silica	£699	A1500	68030	40 MHz	4 Mb	68882	****	27
M1230XA	Indi Direct	£299	A1200	68030	50MHz	128 Mb	68882	****	29
Mercury	Power Computing	£1,249	A3000	68040	28 MHz	32 Mb	68882	*****	14
VXL-30	ZCL Ltd	£409	A500	68030	25 MHz	8 Mb	Yes	N/A	–
Zeus	Power Computing	£1,449	A1500→	68040	28 MHz	64 Mb	68882	*****	14

Note: Although some 68030 cards appear to run faster than their '040 equivalents, this may not necessarily be the case. All '040 cards will run faster internally.

SCANNERS

Model	Supplier	Price	Machine	Type	Colour	Resolution	Rating	Issue
AlfaScan	Golden Image	£199	Any	Hand Held	No	400dpi	*****	14, 22
DaataScan 2GS	Pandaal	£125	Any	Hand Held	No	400dpi	***	14, 22
GT-6000	Epson UK	£1300	Any	Flatbed	Yes	600dpi	*****	17
GeniScan	Datel	£130	Any	Hand Held	No	400dpi	N/A	–
GoldenImage	GoldenImage	£150	Any	Hand Held	No	400dpi	*****	5
Handy Scanner	Pandaal	£140	Any	Hand Held	No	400dpi	***	14
Pandaal Scanner	Pandaal	£180	Any	Hand Held	No	400dpi	****	3
Power Scanner 2	Power Computing	£99	Any	Hand Held	No	400dpi	*****	14
Powerscan Colour	Power Computing	£239	Any	Hand Held	Yes	400dpi	***	23
Sharp JX-100	Silica	£695	Any	Hand Held	Yes	200dpi	N/A	–
Sharp JX-300	Silica	£3600	Any	FlatBed	Yes	300dpi	N/A	–

DIGITISERS

Model	Supplier	Price	Realtime	Colour	Realtime Colour	Animation	Rating	Issue
ColourPic Plus	JCL	£699	Yes	Yes	Yes	Yes	****	22
DigiView 4	Silica	£150	No	Yes	No	No	N/A	–
FrameGrabber	Marcam	£599	Yes	Yes	Yes	Yes	N/A	–
FrameMachine	Micro-PACE UK	£379.95	Yes	Yes	Yes	Yes	***	31
V-Lab	ACS	£300	Yes	Yes	Yes	No	****	17
V-Lab YC	ACS	£381	Yes	Yes	Yes	No	****	32
VideoDigitiser	Datel	£80	Yes	Yes	No	No	N/A	–
VideoMaster	MicroDeal	£69.95	Yes	Yes	No	Yes	****	25
Videon	Power Computing	£200	No	Yes	No	No	N/A	–
Vidi-Amiga 12 AGA	Rombo	£99.95	Yes	Yes	No	Yes	*****	22

SOUND SAMPLERS

Model	Supplier	Price	Stereo	Volume Adjust	Resolution	Rating	Issue
AD1012	HB Marketing	£399	Yes	Yes	12-bit	N/A	–
AD1016	HB Marketing	£TBA	Yes	Yes	16-bit	N/A	–
AMAS 2	MicroDeal	£100	Yes	Yes	8-bit	N/A	–
Audio Engineer	HB Marketing	£199	Yes	Yes	8-bit	*****	5
Audition 4	HB Marketing	£49	Yes	Yes	8-bit	****	10
Clarity 16	MicroDeal	£149.95	Yes	Yes	16-bit	****	25
GVP DSS	Silica	£60	Yes	Yes	8-bit	****	3
Megamix Master	Rombo	£39.95	Yes	Yes	8-bit	N/A	–
MicroSampler	Datel	£25	Yes	No	8-bit	N/A	–
Perfect Sound 3	HB Marketing	£60	Yes	Yes	8-bit	***	10
SampleStudio 2	Datel	£70	Yes	No	8-bit	N/A	–
Sound Master	HB Marketing	£130	Yes	Yes	8-bit	N/A	–
SoundTrap 3	Omega Projects	£30	No	No	8-bit	****	3
StereoMaster	MicroDeal	£40	Yes	Yes	8-bit	****	11
StereoSampler2	Trilogic	£40	Yes	Yes	8-bit	N/A	–
TechnoSound Turbo	New Dimensions	£49.95	Yes	Yes	8-bit	****	30

Note: AD1012 and AD1016 are for A1500→ only

GENLOCKS

Model	Supplier	Price	Fade	Dissolve	S-VHS	RGB Pass thru	Rating	Issue
8802 FMC	Marcam	£178	Yes	Yes	No	Yes	****	31
A8802	Marcam	£139	No	No	No	Yes	N/A	–
A8802S-VHS	Marcam	£499	Yes	Yes	Yes	Yes	***	10
A8806	Marcam	£499	No	No	No	Yes	N/A	–
GST Gold	Third Coast	£550	Yes	Yes	Yes	Yes	N/A	–
GeneSys	G-2 Systems	£934	Yes	Yes	Yes	Yes	****	29
Hama 290	Hama PVAC	£749	Yes	Yes	Yes	Yes	****	16
ImageMaster	Neriki	£1,150	Yes	Yes	Yes	Yes	N/A	–
MicroGen	Power Computing	£199	Yes	Yes	No	Yes	N/A	–
MiniGen	Lola	£49.95	No	No	No	No	*****	31
MiniGen Pro	Lola	£149.95	Yes	Yes	No	Yes	****	32
ProGen	Gordon Harwood	£130	No	No	No	Yes	N/A	–
RocGen	Silica	£117	Yes	Yes	No	No	****	8
RocGen+	Silica	£199	Yes	Yes	No	Yes	****	10
VideoCentre2	G2	£1,170	Yes	Yes	Yes	Yes	N/A	–
VideoCentre3	G2	£1,999	Yes	Yes	Yes	Yes	****	7

PRODUCT LOCATOR

VideoMaster VM-2	Power Computing	£799	Yes	Yes	Yes	Yes	***	1
Videocomp G-100	Silica	£1,800	Yes	Yes	Yes	Yes	*****	3

COLOUR CARDS

Model	Supplier	Machine	Price	Type	Colour Palette	Max Resolution	Rating	Issue
AVideo 12	Checkmate	A1500→	£299	12-bit	12-bit	768x580	***	13
AVideo 24	Checkmate	A1500→	£599	24-bit	24-bit	768x580	****	15
DCTV	Silica	A500	£499	Pseudo	24-bit	368x580	****	12
GVP IV-24	Silica	A1500→	£1,799	24-bit	24-bit	910x576	****	12
Harlequin	ACS	A1500→	£1,400	24-bit	24-bit	910x576	*****	11
OpalVision	Micro-PACE	A1500→	£899	24-bit	24-bit	768x580	*****	20
Rembrandt	Power Computing	A1500→	£1,499	24-bit	24-bit	1024x1024	****	13
Retina	ACS	A1500→	£345	24-bit	24-bit	2400x1200	****	27

Note: A500 devices can be used on all Amigas

TOUCH TABLETS

Model	Supplier	Price	Size	Resolution	Rating	Issue
Cherry Mk4	Cherry	£450	9x12"	*****	N/A	–
Genitizer	Datel	£130	9x6"	****	N/A	–
Podstat PT-3030	HB Marketing	£179	9x12"	*****	N/A	–

DOT MATRIX PRINTERS

Model	Supplier	Price	Pins	Speed(CPS)	Fonts	Buffer	Rating	Issue
200	Citizen	£250	24	240	7	8K	N/A	–
240C	Citizen	£350	24 (colour)	240	9	8K	N/A	–
L24d	Citizen	£292	24	109	3	8K	****	4
LC200	Star	£304	24	91	4	16K	****	4
LC24	Star	£304	24	130	5	16K	****	4
LQ400	Epson	£269	24	121	3	8K	****	4
LQ550	Epson	£375	9	109	4	8K	***	4
LX850	Epson	£269	9/24	106	3	4K	***	4
ML380	Oki	£386	24	127	3	8K	****	4
P20	NEC	£351	24	115	8	8K	****	4
Swift 24	Citizen	£428	24	121	5	8K	****	4
Swift 9	Citizen	£280	9	121	3	8K	*****	4
Swift 90C	Citizen	£169	9	216	6	8K	****	29

INKJET PRINTERS

Model	Supplier	Price	Nozzles	Speed CPS	Fonts	Resolution	Rating	Issue
B100	Fujitsu	£349	48	160	3	300dpi	****	22
B200	Fujitsu	£499	48	180	3	300dpi	***	22
BJ-10ex	Canon	£299	64	83	4	360dpi	*****	22
BJ-10sx	Canon	£227	64	110	3	360dpi	****	29
BJ300	Canon	£495	64	300	3	360dpi	****	22
Diconix 701	Kodak	£399	48	200	3	300dpi	***	22
Projet	Citizen	£496	48	360	3	360dpi	****	22
SQ870	Epson	£659	48	360	8	360dpi	****	22
Stylus 800	Epson	£295	48	360	8	360dpi	***	29

LASER PRINTERS

Model	Supplier	Price	Memory	Speed (pgs per min)	Fonts	Resolution	Rating	Issue
EPL4000	Epson	£799	512K–5.5Mb	6	2	300dpi	****	22
LBP-4 Plus	Canon	£1,175	512K–2.5Mb	5	5	300dpi	****	22
Laser 4	Star	£1,173	1Mb–5Mb	4	4	300dpi	****	22
OL400	Oki	£549	512K–2Mb	4	4	300dpi	*****	22
Ricoh LP1200	Silica	£820	2Mb–4Mb	6	6	400dpi	*****	22

MISCELLANEOUS HARDWARE

Model	Supplier	Price	Type	Rating	Issue
Emplant	BlitterSoft	£254.95	Macintosh Emulator	****	28
GlareGuard	GND Distribution`	£86.25	Screen filter	****	26
Golden Gate	Silica Systems	£N/A	25MHz 80386 PC Emulator for Amiga 1500+	N/A	–
I/O Port	SwitchSoft	£28	Electronics Projects kit	****	17
ICD KickBack	Silica Systems	£27	Keyboard switchable ROM sharer	N/A	–
Kickswitch	Omega Projects	£25	Keyboard switchable ROM sharer	N/A	–
Opto Mouse	Gasteiner	£14.95	High resolution mouse	****	28
Realt-time clock	First Choice	£17.99	A1200 real-time clock	****	29
RocKey	Silica Systems	£350	Chromakey for RocGen Plus genlock	****	19
Sound Enhancer	Omega Projects	£40	Improved Amiga sound capabilities	N/A	–
Toshiba CD-ROM	Almathera	£499	CD-ROM drive	****	27

If your company has a product which you think deserves to appear in the *Amiga Shopper Product Locator*, please write to us at the usual editorial address with full details.

SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST • SUPPLIER LIST

ACS	0896 87583
ACL	0933 650677
Almathera	081 683 6418
App. Engineering	0101 214 241 6060
ASAP	0724280222
Ashcom	0530 411485
Checkmate Digital Ltd	071 923 0658
Citizen	0895 72621
Commodore	0628 770088
Cortex	051 236 0480
Cumana	0483 503121
Datel Electronics	0782 744707
Digital Micronics	0101 619 431 8301
Epson UK	0442 61144
Evesham Micros	0386 765500
G2 Video Systems	0252 737151
Gasteiner	081 365 1151
GND Distribution	081 885 5512
Golden Image	081 518 7373
Gordon Harwood	0773 836781
HB Marketing	0753 686000
JCL Business Systems	0892 518181
Marcam Ltd	0604 790466
MicroDeal	0726 68020
Naksha UK	0925 56398
NEC	081 993 9831
Neriki	081 900 1866
New Dimensions	0291 690933
Oki	0753 31292
Omega Projects	0942 682206
Pandaal Marketing	0234 855666
Power Computing	0234 273000
Protar	0923 54133
Rombo	0506 414631
SA & H	010 40 0511 551701
Silica Systems	081 309 1111
SMG	0274 562999
Solid State Leisure	0933 650677
Star	0494 471111
Surface UK	081 566 6677
Switchsoft	0325 464423
Third Coast Technologies	0257472444
Trilogic	0274 678062
Virgo	0276 676308
WTS Electronics	0582 491949
ZCL Ltd	0543 251275

Greater Guidance – Better Buy

Getting confused in the alluring shopping jungle is easy. Amiga Shopper leads the way to a better buy.

Colourful adverts tempt you with amazing pieces of equipment and software for your Amiga. They are faster, bigger, better and you are just dying to get your hands on them. Your first step to avoid dishonest businesses (thankfully they are a small minority, but all it takes is one!) and ultimately disappointment on your behalf, is to read our Safe Shopping advice. Follow a few simple steps and the Amiga kit of your dreams will safely be yours.

BUYING IN PERSON

● Where possible, always test any software and hardware in the shop before taking it home, to make sure that everything works properly.

● Make sure you have all the necessary leads, manuals or other accessories you should have.

● Don't forget to keep your receipt.

BUYING BY PHONE

● Be as clear as possible when stating what you want to buy and make sure you confirm all the technical details. Things to bear in mind are: version numbers, memory requirements, other hardware or software required, and compatibility with your Amiga (be sure you know which version of Kickstart you have).

● Check the price you are asked to pay, and make sure that it's the same as the price advertised.

● Check that what you are ordering is actually in stock.

● Check when and how the article will be delivered, and that any extra charges are as stated on the advert.

● Make a note of the date and time when you order the product.

BUYING BY POST

● You must remember to clearly state exactly what you are buying, at what price (refer to the magazine, page and issue number where it's advertised) and give any relevant information about your system set-up that will reduce the risk of hiccups.

● Make sure you keep copies of all correspondence.

MAKING RETURNS

You are entitled to return a product if it fails to meet one of the following criteria:

❶ The goods must be of 'merchantable quality.'
❷ They must be "as described".
❸ They must be fit for the purpose for which they were sold, or for the purpose you specified when ordering.

If they fail to satisfy any or all of the criteria, then you are entitled to:

● Return them for a refund.
● Receive compensation for part of the value.
● Get a replacement or free repair.

● When returning a product, ensure you have proof of purchase and that you return the item as soon as possible after receiving it. That's why it is important to check it thoroughly as soon as it is delivered.

GETTING REPAIRS

● Always check the conditions of the guarantee, and servicing and replacement policy.

● Always fill in and return warranty cards as soon as possible, and make sure that you are aware of all the conditions in the guarantee.

BUYING PD

● Even though PD software is relatively inexpensive, you should still apply the guidelines set out above, making sure that you confirm all orders as clearly as possible.

● Shopping around is still important when buying PD because different sources charge different prices for the same disks. There is no set pricing structure for disks, but bear in mind that PD houses are meant to be non-profit-making operations. AS

Buying by Mail – Ten Steps to Safety

When you're buying from any mail order company, it's worth following *Amiga Shopper's* useful guidelines to avoid confusion and disappointment:

1.) Before you send any money, ring the supplier to make sure the item you require is in stock. Ask questions about the company's policy on delivery and returns of faulty equipment. Make sure that there are no hidden costs such as postage and packaging. Find out when you can *realistically* expect to receive your goods.

2.) Always read the small print in adverts. This is normally where the unpleasant surprises are hidden

3.) Beware companies that do not include their address on their adverts. Also, avoid companies which do not answer or return your calls.

4.) By far the best method of payment is by credit card. If ordering goods of more than £100 in total value, remember that you are legally entitled to claim compensation from some credit companies if the retailer goes bust. Check your credit card company's policy carefully. You can also try to get extra insurance in advance.

5.) If you're not paying by credit card, pay by cheque. Never send cash, and avoid using postal orders.

6.) Keep records. If you are buying by credit card keep a note of the time of the order and ask for an order number. When ordering anything over the telephone, always double-check the price.

7.) When sending a cheque keep a note of the cheque number, the date and the exact value. Make sure you know the exact name of the mail order company.

8.) When you receive your goods, check them carefully. If anything is missing or faulty, contact the supplier immediately.

9.) Always order from the most recent issue of *Amiga Shopper*.

10.) If a problem does arise, contact the supplier in the first instance. Calmly and politely tell them your problem. Most problems turn out to be minor hitches or misunderstandings that can easily be resolved. If you think you have a genuine grievance, contact your local Trading Standards Officer. The number is in the phone book.

ADVERTISERS INDEX

JUST LOOK WHAT'S HAPPENING IN NEXT MONTH'S ISSUE...

It's time to get things moving! Next month we'll be showing you how to create the sort of gob-smacking animations that have made the Amiga famous the world over. There's more to it than meets the eye: as well as the traditional animation techniques you're probably already familiar with, there's claymation, see-through tracing, procedural animation and colour cycling. Discover how to use all these to best effect in next month's issue.

As well as discussing the various techniques and how best to use them, we'll show you how to create your very own moving masterpiece in *Deluxe Paint*, step-by-detailed-step.

And if that wasn't enough, we'll be reviewing the very latest in top-flight animation programs, including the remarkable *Aladdin 4D 3.0* and the accompanying *Fountain* particle animation system, and the forthcoming *Brilliance 2*.

All this, plus news and incisive industry comment, tutorials on video, DTP and programming, reviews and the famously huge *Amiga Answers*.

YOU HAVE WON!

And it's congratualtions to Mr AF Wilson of Stenhousemuir, Stirlingshire, who's the lucky winner of our March issue competition, *Emulation Sensation*. He'll be rewarded for his endeavours with an Emplant Mac emulator board, donated by the good people at Blittersoft. Emplant is a Mac emulator, and comes with an AppleTalk serial interface and a SCSI adaptor.

Congratualtions too to Philip Bell of Newcastle Upon Tyne, who won last month's *It Certainly Wasn't Alpha Centauri* subs compo. He spotted our trick question and revealed that Chris Foss didn't in fact study art, but architecture at Cambridge.

MAKE SURE YOU RESERVE A COPY OF YOUR FAVOURITE MAGAZINE AT YOUR LOCAL NEWSAGENT NOW!

DEAR NEWSAGENT, Please reserve/deliver me a copy of *Amiga Shopper* every month, beginning with the June issue, which goes on sale on Tuesday 3 May.

Name ____________________

Address ____________________

____

____

Postcode ____________ ☎ ____________

• NOTE TO NEWSAGENT: *Amiga Shopper* is published by Future Publishing (0225 442244) and is available from your local wholesaler.

• PS Oh, and if you do have any problems getting hold of your favourite Amiga mag, call Kate Elston on 0225 442244 and she'll help you out.

AT-A-GLANCE GUIDE

To help you find what you want quickly, here is a cross-referenced list of everything covered in this month's *Amiga Shopper*. You'll find a detailed index to the problem-solving *Amiga Answers* section on page 37. The page numbers given are for the first page of the article in which the subject is mentioned.

Are there any products or subjects you'd like us to take a look at? Well, just drop a line to: *Amiga Shopper*, 30 Monmouth Street, Bath, Avon BA1 2BW.

AMIGA SHOPPER

Issue 37 – May 1994

Editor: Cliff Ramshaw
Art Editor: Nick Aspell
Production Editor: Anna Grenstam
Technical Writer: Graeme Sandiford
Consultant Editors: Jeff Walker, Mark Smiddy
Contributors: Jason Holborn, Gary Whiteley, John Kennedy, Dave Winder, Toby Simpson, R Shamms Mortier, Paul Overaa, Pat McDonald
Photography: Pete Canning, Rob Scott
Cover Montage: Andrew Humbley
Ad Manager: Jackie Garford
Sales Executives: Anne Green, Diane Clarke
Ad Production Manager: Tracy O'Donnell
Ad Design: Lisa Withey
Production Technicians: Jon Moore, Mark Gover, Simon Windsor, Chris Stocker
Group Production Manager: Judith Middleton
Production Controller: Claire Thomas
Production Control Assistant: Megan Doole
Paper Controller: Fiona Deane
Admin Assistant: Suzannah Angelo-Sparling
Distribution: Sue Hartley
Publisher: Steve Carey
Joint Managing Director: Greg Ingham

Member of the Audit Bureau of Circulations
ABC Audited circulation July – December 1993: 37,583

Printed by Southernprint Ltd, Poole, Dorset
ISSN 0961-7302 Printed in the UK
Circulation Manager: Jon Bickley
News Trade Distribution –
UK: Future Publishing 0225 442244
Worldwide: MMC Ltd 0483 211678

Editorial: 30 Monmouth Street, Bath, Avon BA1 2BW
☎ 0225 442244 Fax: 0225 446019
E-mail: amshopper@cix.compulink.co.uk

Advertising: Rayner House, 23 Higher Hillgate, Stockport SK1 3ER. ☎ 061 474 7333 Fax: 061 476 3002

Subscriptions: Future Publishing Ltd, FREEPOST(BS4900) Somerton, Somerset TA11 6BR. ☎ 0225 822510

WHY IS WORDWORTH THE WORLD'S NO.1 AMIGA WORD PROCESSOR



Wordworth 3



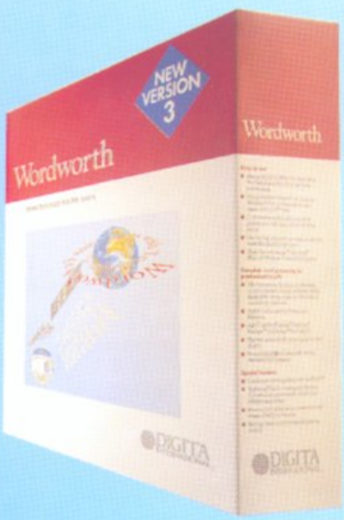
Innovative features like TextEffects.™ Type some text, set the font, colour, shadows, and then, weeeeee! Try rotate, circle, spiral, arc, star; create eye–catching effects with text.

Better by design. You can customise the toolbar by choosing from a range of large or small icons. Perform over 100 tasks by simply clicking an icon.

Thinking for you, DigiSense.™ Built–in intelligence. Like Auto Correct, which automatically corrects mistakes as you type. On–line help is always available, should you need it.

Stylish drawing tools. Now you can freely draw lines, boxes, circles, TextEffects™ and tables, straight onto the page.

Pictures and colour. Place pictures with up to 256 colours, and then size, scale and drag them as necessary (text flows around the image automatically).



Easy–to–use. With the University of Wales, Swansea, we've been studying 1,000 users working with Wordworth. We watched, we listened and we thought. The result is right before your eyes.

To find out more about the world of Wordworth and the new Wordworth 3, call 0395 270273, or write to Digita, FREEPOST, Exmouth EX8 2YZ.

DIGITA INTERNATIONAL®

WORLD OF WORDWORTH